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# The Dental Digest

January 1931

*Editor-*

GEORGE WOOD CLAPP, D. D. S.

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# THE DENTAL DIGEST

VOLUME XXXVII

JANUARY, 1931

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### THE DENTAL DIGEST

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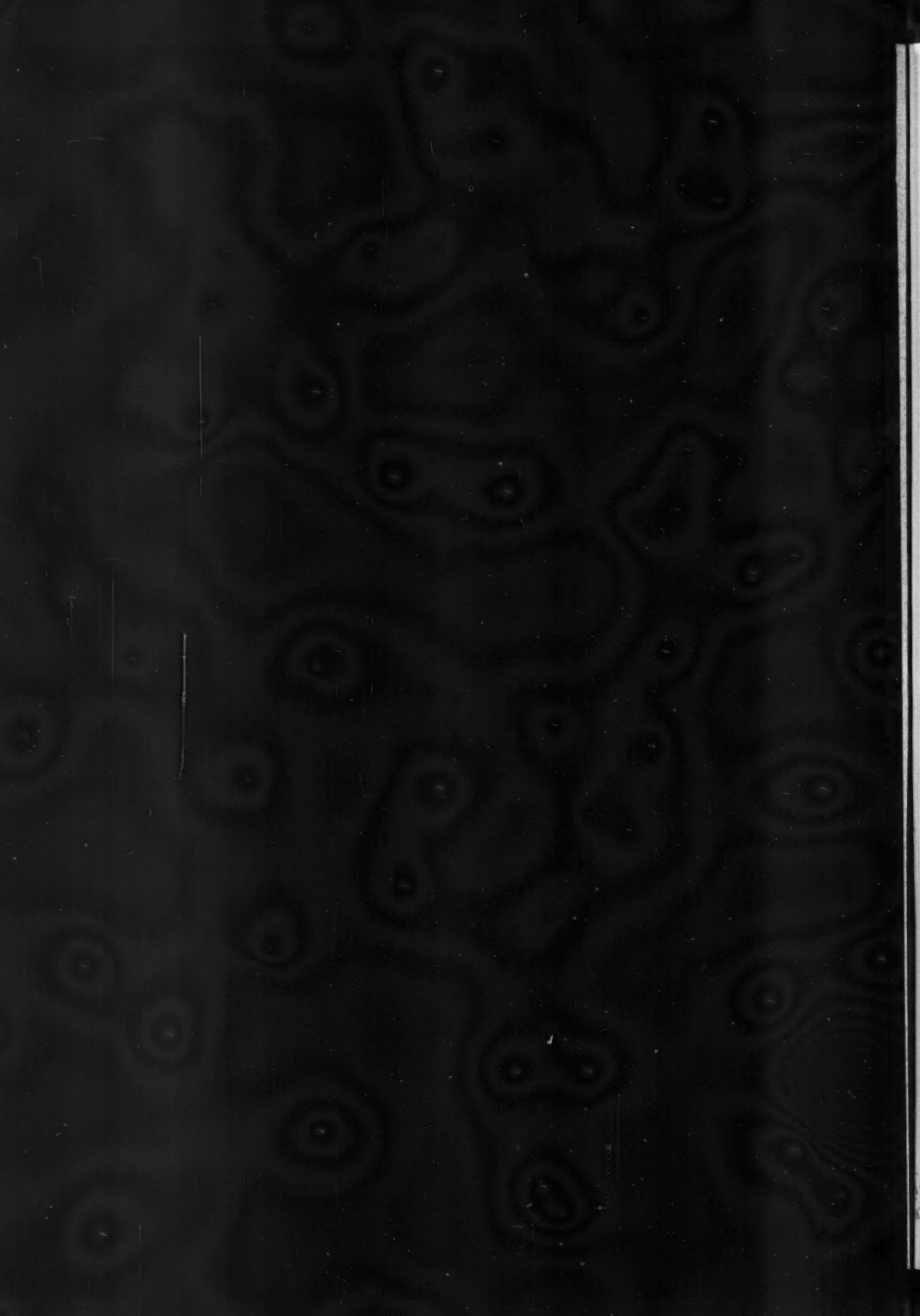
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# THE DENTAL DIGEST

VOLUME XXXVII

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## Carbon Dioxid

By IRWIN ABEL, D.D.S., New York, N. Y.

Because of the theory that carbon dioxid is a waste product of metabolism and serves no other purpose in the body it has been ignored by medical authorities, and only in recent years have experimenters recognized its value in medicine.

Exodontists using general anesthesia also have been advised as to the value of  $\text{CO}_2$  in their work. I have experienced a few unhappy moments during the administration of nitrous oxid and oxygen in which the patient ceased to breathe and was brought back to consciousness after some efforts with artificial respiration. It was at this time that I wished for a tank of carbon dioxid because of its value as a respiratory stimulant. Since then I have made a study of this gas.

### SOURCE

Carbon dioxid is found in its natural state in the atmosphere, constituting .03% by volume. Its presence in the air is produced by volcanic gases, which are constantly pouring forth from the earth's surfaces. In Italy, near Naples, there is a cave, called the *Grotto del Cave*, from which a gas consisting of 70% carbon dioxid, 24% nitrogen and 6% oxygen is given off. In Yellowstone National Park several caves contain carbon dioxid which is produced by the action of heat on the carbonates

and silicates in the deeper layers of the earth.

In reviewing its sources it must be remembered that the gas is an end-product of metabolism. About 900 grams of carbon dioxid are expired daily by the average human being. Commercially it is produced by heating coke in the presence of oxygen. This gas is not pure nor dry enough to permit its use in medicine. It is therefore purified and dried by special processes and placed in sterilized dry tanks, ready for use. It is a colorless and odorless gas about one-half the weight of ordinary air.

### PHYSIOLOGICAL ACTION

To understand the action of carbon dioxid better, a brief description of the physiology of respiration is necessary.

In the alveoli of the lungs the oxygen from the inspired air is taken up by minute capillaries and carried by the blood stream to various tissues of the body in the form of oxyhemoglobin. At the same time carbon dioxid from the blood passes through the alveolar walls into the lungs and is expired. This interchange of gases takes place at the height of inspiration. Expiration occurs after the interchange. The muscles of expiration and inspiration are controlled by the respiratory center.



The respiratory center is influenced by two factors:

- (1) The vagus nerve.
- (2) The presence of carbon dioxid in the blood.

The vagus nerve fibers originate in the lungs. When the alveoli are distended, these fibers are stimulated and impulses are carried to the respiratory center. Thus inspiration is inhibited and expiration begins. Carbon dioxid in the blood carried to the alveoli for expiration constitutes 4% of the expired air. Inspired air contains only .04% of carbon dioxid.

If 4% or 5% of carbon dioxid is taken into the lungs, the interchange of oxygen for carbon dioxid is rendered more difficult, with the result that there is an increased tension of carbon dioxid in the blood. Consequently the respiratory center is stimulated to produce a greater activity of the respiratory muscles. It is the increased amount of carbon dioxid gas which stimulates the vagus nerve fibers.

If there is a continuous overventilation of the lungs, the carbon-dioxid tension is lowered and breathing slows up. For this reason I believe it unwise, in ending the anesthetic, to overincrease the flow of oxygen to the patient.

#### MEDICAL USES

Carbon dioxid has been found to have certain properties which make it desirable for therapeutic purposes.

In cases of electrical shock or in drowning a 5% mixture of carbon dioxid with 95% oxygen is forced into the patient's lungs. The gas acts as a respiratory stimulant, and the oxygen ventilates the lungs.

Russell F. Sheldon, M.D., of Boston,

describes several cases of hiccough treated with carbon dioxid by means of the Gwathmey machine. He tells also of a hiccough developing during anesthesia which was controlled by the gas.

Carbon dioxid has been used also for starting respiration in the new-born in place of the vigorous manipulation heretofore practiced.

An interesting report comes from the University of California, where patients suffering from dementia præcox catatonica have been treated. These patients have been improved by inhalations of the gas.

In solid form carbon dioxid is used in dermatology for the removal of growths, such as small epitheliomas. Liquid carbon dioxid is used in the pathological laboratory for freezing tissues so that they may easily be cut into sections for microscopic study.

White and Huxthal<sup>1</sup> suggests the use of carbon dioxid in the treatment of carbon-monoxid poisoning, and also in the treatment of intoxicated individuals. They report successful results in cases of morphin and veronal poisoning.

J. C. White<sup>2</sup> describes the use of the gas in treating patients having great discomfort following ether anesthesia. In these cases carbon dioxid hastened the elimination of ether from the body. This has been especially valuable in very sick persons having extensive abdominal wounds, where vomiting is undesirable.

Henderson, Haggard and Coburn<sup>3</sup> state its value after operation and anesthesia, especially in restoring the

<sup>1</sup> *Boston Medical Journal*, December 15, 1927.

<sup>2</sup> *Archives of Surgery*, 1923.

<sup>3</sup> *The Journal of the American Medical Association*, March 20, 1920.

arterial blood-pressure and decreasing nausea.

#### ANESTHETIC USES

Carbon dioxid in mixtures up to 5% is used to induce ether anesthesia. It is used also with oxygen, nitrous oxid and ethylene. In the latter mixture Gwathmey considers carbon dioxid as an aid in decreasing the explosive properties of ethylene.

Lundy, reporting on 1350 cases in which carbon dioxid was used in the anesthetic mixture, states:

- (1) That there is an increase in the rate of absorption of the anesthetic by increasing the volume of respiration.
- (2) That there is a reduction of struggling, breath-holding and shallow breathing.
- (3) That greater relaxation may be obtained, due to the fact that reflexes are controlled better.

From this one can readily see the value of the gas in the elimination of excitement during the induction of anesthesia.

It has been stated by Haldane that exercise increases the amount of carbon dioxid produced in the body and also makes it necessary for more oxygen to be consumed. Therefore, if the patient should struggle and begin to show excitement during anesthesia, I find it advisable to increase the amount of oxygen instead of increasing the anesthetic. If this struggling should continue and oxygen is not administered to the patient, asphyxia will probably result.

Asphyxia, as you know, is a lack of oxygen in the blood. It may be caused by a closure of the trachea (due to mechanical or pathological conditions),

by faulty position of the head in anesthesia or by the absence of oxygen in the air inhaled. Inability of the body to throw off carbon dioxid is another reason for asphyxia.

There are three stages of asphyxia. The first lasts from one-half to one minute, during which there is an increase in the respiratory movements. This is caused by the presence of carbon dioxid in the blood and is followed by a period in which there is excitement of the central nervous system and results in convulsive movements of the extremities lasting about one minute. In the third stage there is an absence of all reflexes, with paralysis. Death soon follows.

When asphyxia begins, there is a rise in blood-pressure because of a stimulation of the vasomotor centers by the action of the carbon dioxid. This causes a constriction of the arterioles. Adrenalin is also set free in the blood, which helps to cause the rise in the blood-pressure. Later the blood-pressure falls suddenly and the heart fails.

Of course the respiratory center is more sensitive to an excess of carbon dioxid than the vasomotor center, and therefore it responds more quickly to impulses. Consequently we find that respiration ceases, although the heart continues to beat.

From the preceding statements I believe it unwise, during emergencies of anesthetics, to use cardiac stimulants (such as injections of adrenalin), as we probably would defeat our purpose. In using the term "emergencies of anesthetics" I do not refer to cases of shock.

#### CONCLUSION

In describing asphyxia perhaps I have

digressed from the original subject-matter of this paper, but I assure you that my purpose has been merely to emphasize the importance of carbon dioxid to the respiratory movements and the serious results from its presence in large amounts in the blood.

May I remind those of you who use carbon dioxid as an adjunct in anesthesia that caution should be exercised, and that as soon as respiration gets too

deep, as indicated by vigorous movements of the abdominal and chest muscles, the supply going to the patient should be cut down.

In doses up to 5% of the total gases used in anesthetizing the patient we may consider carbon dioxid as a respiratory and vasomotor stimulant and as a valuable aid to the capable anesthetist.

10 West Fordham Road



[X-RAY MAY MISLEAD]

*Dental infection will not of necessity produce resorption of bone at the apex of the involved tooth, but it appears that the clinician and the dentist consider that the amount of infection absorbed is in direct proportion to the size of the area of rarefaction seen in the roentgenogram.*

—STRAFNE.



## Prevention of Post-Operative Pain by Means of the Removal of Distended Alveolar Margins, Following Extraction of Mandibular Molars

By M. HILLEL FELDMAN, D.D.S., New York, N. Y.

Author of Textbook on Exodontia; Instructor in General Anesthesia, Allied Dental Council, New York;  
Chief of Dental Department, Lincoln Hospital, New York; Founder and President,  
The Society for the Advancement of General Anesthesia in Dentistry

A frequent cause for post-operative complaint following the extraction of a mandibular molar is the distention of bone fragments. The topical applica-

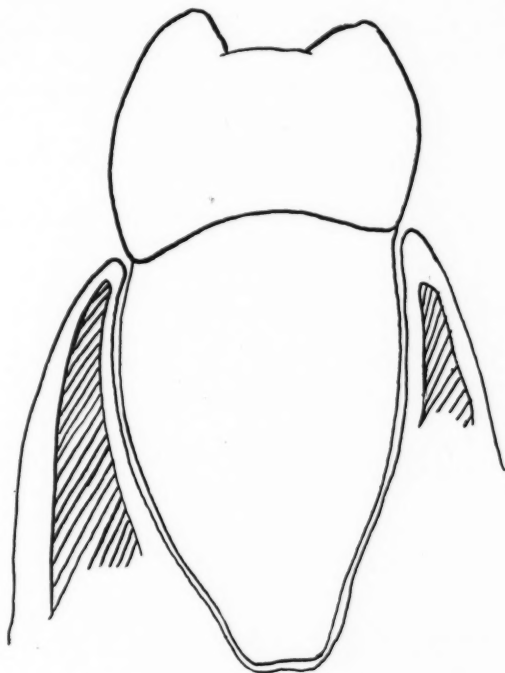


Fig. 1

Diagrammatic representation of the relationship of the buccal alveolar crest to the molar before extraction.

the buccogingival alveolar margin and the fracture of the septal alveolar crest. One or both of these conditions may

tion of drugs temporarily helps but does not hasten early healing of the wound. The logical management of this con-

dition is surgery. By this means one secures a better ridge contour for prosthesis and removes the cause promptly. Much of the distress associated with such post-operative conditions may be alleviated by following out the author's technic here described.

Fig. 1 shows a mandibular molar with the buccal bony investment por-

Many writers advocate compression of the buccal and lingual plates of bone, between the thumb and index finger, to bring the expanded parts back to the original contour. Sometimes this is good technic. Frequently, however, the bone which has been distended does not reunite, due to injury attendant upon the fulcrumization used for the

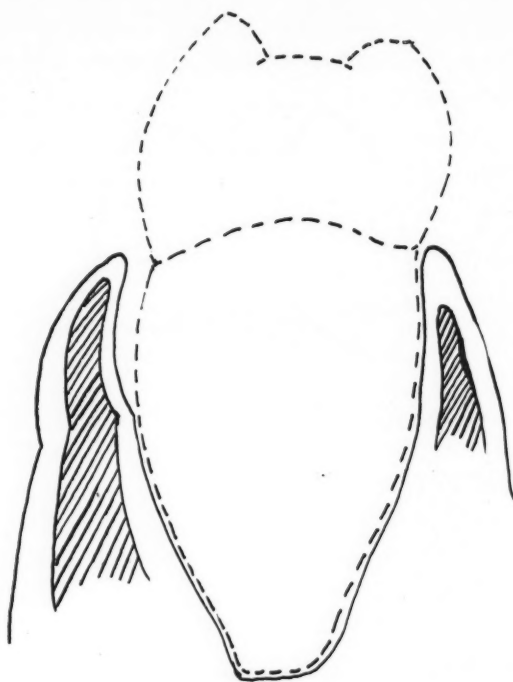


Fig. 2

Diagrammatic representation of the distention of the buccal alveolar crest outwardly in the natural process of delivery of the tooth. This always prevails wherever there is a constriction of the tooth at the cemento-enamel boundary.

trayed diagrammatically. It will be seen that in the usual procedure of the removal of the molar the buccogingival alveolar border must of necessity be loosened. Many operators recognize this.

delivery of the molar. It is the author's practice to remove this distended alveolar margin, frequently fractured, rather than to compress it into position. It is a structure which resorbs during the

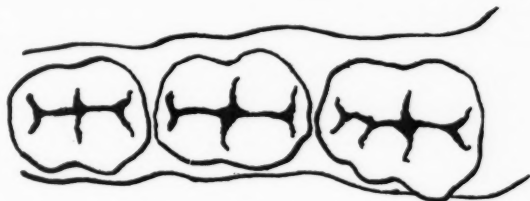


Fig. 3

Diagrammatic representation of three mandibular molars to illustrate the appearance of the bone around the second molar preceding its extraction, as indicated in Fig. 4.

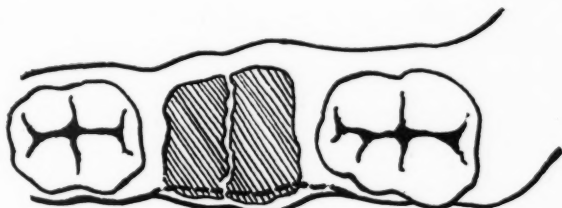


Fig. 4

Diagrammatic representation of area following extraction of the mandibular second molar, indicating by solid line the distention of the buccal plate at the gingival border. The dotted line represents the original outer line of contour.

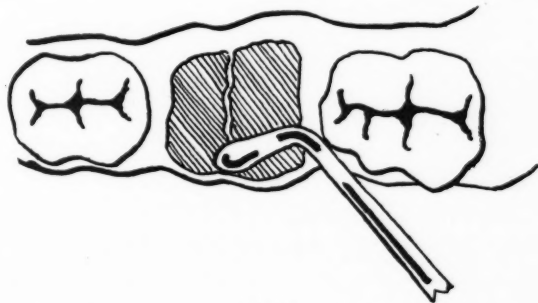


Fig. 5

Diagrammatic representation of the method of removing the distended buccogingival alveolar border with the curetolever following the extraction of the tooth.



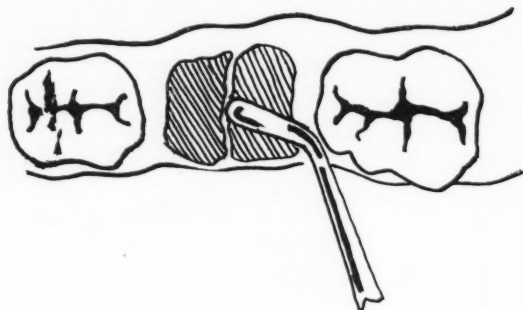


Fig. 6

Diagrammatic representation of the use of the curetolever for the removal of the septal crest of the mandibular second molar.

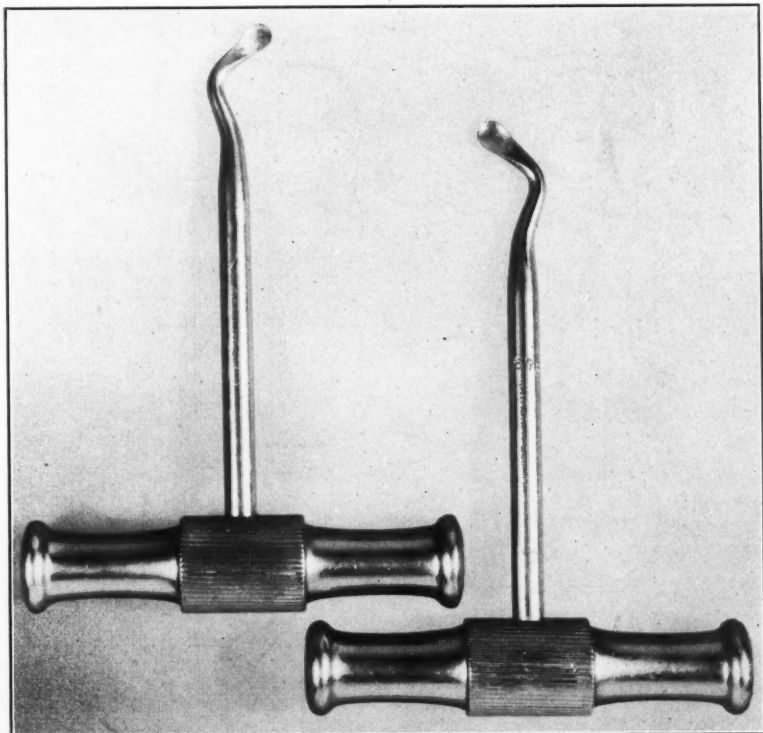


Fig. 7—(Large size)

The author's curetolever shown in large and small sizes. Useful both for elevation of roots and for curettage.

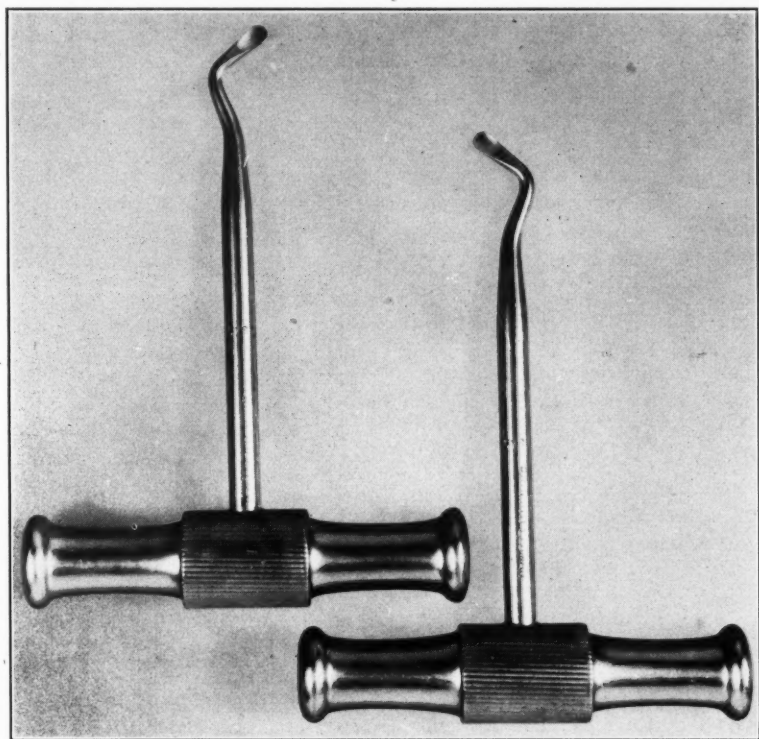


Fig. 7—(Small size)

healing process anyway. There can therefore be no objection to its removal at the time of extraction.

The author has devised an instrument known as the *curetolever* which is ideally adapted for this service. It removes the buccal margin, and also the septal crest, and is used likewise for the elevation of fractured molar roots. It is a combination of the principle of the Winter exolever and a curet. It does everything the exolever does and also has the advantage of making the

instrument do double service in curet- tage of investment walls and apical areas.

It is important to remember that the instrument must never be rested against a tooth mesially or distally to the area of extraction. This is a prolific cause of post-operative pain. All fulcrumiza- tion must be at the buccal aspect of the molar extracted. This saves any adjacent tooth from being injured. Injury thus sustained leads to failure of a healthy blood-clot to organize. A

so-called *dry socket* ensues. Blood will not coagulate around injured bone. Hence it is obvious that proper attention to the alveolar margins and crest

saves the patient a painful ordeal. The curetometer in the author's hands is proving itself to be a useful means to this end.

730 Fifth Avenue



[PARTIAL DENTURES]

*Let us review just what will happen to the average tissue-bearing case within a few months, supposing that we have attained a favorable result at the completion of the denture. Such cases rapidly settle, becoming unserviceable in mastication, causing inflammation at the free margin of the gums of the abutment teeth or at other points in the saddle area. This is followed by rapid resorption of the alveolar ridges and loss of balanced occlusion, subjecting the remaining natural teeth to malocclusion. Furthermore, we have lost the correct maxillary and mandibular relations, resulting in the loss of facial dimension and even the possibility of impairment of the hearing and congestion of the throat. Unfortunately, the ill results are not confined only to the arch upon which the partial restoration is placed, but injury from traumatic occlusion is equally detrimental to the teeth and supporting structures of the opposing jaw. Thus we risk a loss of function, esthetics and comfort with a permanent injury to the patient, all brought about by constructing an appliance of improper design.*

—SCHUYLER.



## Clinical Laboratory Methods In Dentistry

By NATHANIEL FREEMAN, D.D.S., New York, N. Y.

Adjunct Dentist, Mount Sinai Hospital and Montefiore Hospital

### IV

In differentiating the various micro-organisms most often encountered in clinical bacteriology of the mouth the following factors enter into consideration:

- (1) The morphology.
- (2) The cultural reactions.
- (3) The action of various stains, e.g., Gram negative or positive.
- (4) The action upon the various sugars.
- (5) Motility, etc.

We have briefly mentioned some of the more common micro-organisms usually found in the mouth, but below we will give a more detailed description, as we feel it is sufficiently important.

#### THE MORE COMMON MICRO-ORGANISMS

In the order of importance the *streptococci* will be first considered. These are chiefly parasites. The cells are in pairs or in short or long chains. They are generally Gram positive. Capsules are rarely formed. They grow as effused, translucent, often small isolated colonies on agar. Many carbohydrates are fermented by them with the formation of acid, but they rarely attack inulin. Some species lake blood, others produce methemoglobin, while others have no action on blood at all.

The classification of the various streptococci is still one of the mooted questions. For clinical purposes the

classification has been based upon the action of the various forms upon various sugars. Recent investigators, however, have correlated many of these and placed them in other groupings.

The *Pneumococci* are often encountered in the mouth, and these are described as parasites growing poorly on artificial media. Cells are somewhat elongated, usually in pairs, encapsulated, and sometimes in chains. They are Gram positive, and their fermentative powers are high, most strains forming acid in dextrose, lactose, sucrose and inulin.

A differentiation between the streptococci and pneumococci is furnished by their behavior in a medium of bile or bile salts. When a small quantity of bile is added to a culture of pneumococci, the organisms readily undergo dissolution. Streptococci, on the contrary, not only are not dissolved by bile but continue to grow in media containing these constituents. Pneumococci have been classified into four groups or types by means of the precipitin and agglutinin reactions.

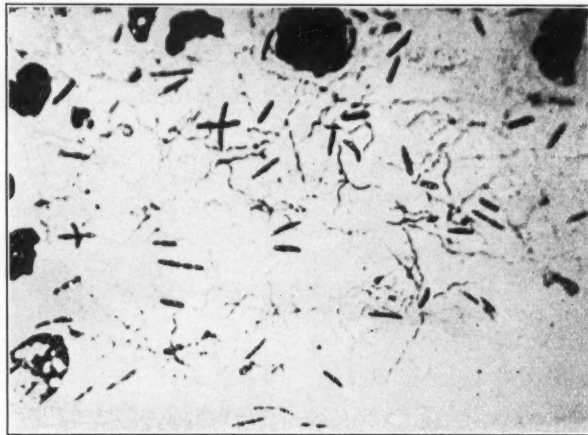
The *staphylococci* are frequently encountered in the mouth, they occur singly or in pairs or irregular groups and are usually Gram positive. Growth is good on artificial media. Carbohydrates are usually fermented with the formation of acid. The staphylococci are differentiated by a peculiar pigment which is elaborated during growth,

giving rise to the three forms, *albus*, *aureus* and *citreus*.

The *spirochetes* form an interesting group, but only the *spirochete pallida* and the *spirochete* of Vincent's infection will be considered in this brief extract.

The *spirochete pallida* is a cylindrical, spirally wound filament with pointed ends, the number of curves in the spiral varying from six to thirty. Although highly motile, flagella are absent. The type of motility is very

These waves are usually irregular. The fusiform bacillus which accompanies it is double-pointed, containing one or more granules, often slightly curved, and is non-motile. Gram stain is variable. Two types have been differentiated by Krumwiede and Pratt, one fermenting saccharose, the other not. For a long time Tunncliffe and others felt that the bacillus and the *spirochete* were different developmental forms of one and the same organism, but the work of Krumwiede and Pratt has disproved



Spirochete of Vincent's From Case of Vincent's Angina (X 1200) (Todd).

characteristic, consisting of a rotation around the long axis of the organism with a gliding backward and forward. The organism stains only with special stains and is observable in the living state by means of dark-field illumination.

The *spirochete* of Vincent's is a very delicate, flexible, motile spiral, the number of curves being usually four or five.

this. One of the strong arguments advanced by these investigators is the motility of the *spirochete* and the non-motility of the bacillus.

#### VINCENT'S INFECTION

In view of the tremendous importance of Vincent's infection at the present time we feel it quite pertinent to discuss this condition more fully.

*Etiology.* The etiology of this disease is due to the invasion of the Vincent's organisms, both the bacillus and the spirillum. These have been described in detail above.

*Diagnosis.* After complete examination diagnosis is made from the appearance of the tissues, subjective symptoms and microscopic examination. No positive diagnosis can be made in the absence of either of the last two.

The first symptom is that of an uncomfortable feeling about the teeth or pain of an indefinite nature accompanied by slight bleeding of the gingival tissues. The breath is usually fetid, although this is not present in the early cases. There is always more or less increased salivation and often a metallic taste in the mouth. There may be patches of pseudomembrane, grayish in color. These ulcers may be confined to a single area or may be present in several parts of the mouth. If the gingival condition is not treated, the gingival margins become necrotic, ulcerations dip down between the teeth, the bone becomes exposed and denuded, the teeth become loosened and necrosis follows. A general feeling of lassitude and depression is present, due to the absorption of toxins. There is some adenopathy, together with increase in pulse, respiration and temperature.

*Differential Diagnosis.* Vincent's infection is an acute disease. The micro-organisms are often natural inhabitants of the mouth and find their way into the areas most favorable to their growth. Pyorrhea pockets are especially favorable habitats as a result of diminished oxygen supply and the accumulated accretions at the bottom. Here, and beneath hypertrophic gingivæ, numbers of

these organisms are found together with many other parasites.

In pyorrhea pus may be expressed from the gingivæ, but in Vincent's infection pus may not be present, although the gingivæ are so painful and tender that mastication is impossible.

Some lesions of Vincent's infection, including mercurial, arsphenamin and some types of bismuth stomatitis, may resemble ulcerative secondary syphilis, but the Wassermann reaction will rule this out.

Differentiation between Vincent's and proliferative hypertrophic gingivitis also must be made. Although the smears may show Vincent's organisms, still the persistence of hemorrhage, the hypertrophy and especially the paleness of the points of the papillæ may suggest an acute lymphatic leukemia. A blood count will usually confirm this.

*Microscopic Diagnosis.* When suspicious areas are found, specimens should be secured for microscopic examination. Cultures are not required as a rule, for the organisms of Vincent are strictly anærobic and will not grow under the aerobic conditions usually employed. The technic of taking a smear has been described in a previous article.

The micro-organisms when found in smears taken from lesions of Vincent's infection are occasionally present almost in pure culture. As a rule, however, they are accompanied by other oral bacteria, which undoubtedly flourish under these conditions. Smears usually contain the material from the surface of the lesions, and, as would be expected, the difficulty of obtaining pure smears of the fusiform bacillus

and the spirillum in these types is almost insuperable.

*Predisposing Factors.* Neglected mouths, carious teeth, inflamed gingivæ and improper diet are predisposing factors. In fact, some authorities believe this disease to be due to certain dietary deficiencies, likening it to a form of scurvy. Cigarette-smoking has been found to be an irritating factor and should be discouraged during treatment.

*Prognosis.* This is usually favorable, but depends upon resulting toxemia. In the more severe cases a feeling of malaise becomes prostration, necessitating confinement to bed. Painful opening of the mouth, drooling saliva and large areas of foul-smelling necrotic tissues are present. The gingivæ are swollen masses of dark red tissue. Lymph nodes are swollen and painful. The temperature rises to 101° to 103° F., or higher. Pulse and respiration are rapid, but feeble and shallow. Serious and even fatal streptococcic infection may be the outcome. Lung gangrene, putrid pneumonia, chronic middle-ear infections, noma or gangrenous stomatitis may result. The patient may become comatose and gradually sinks until the end.

*Blood Picture.* Both the red and the white cell counts drop. The picture in many cases is that of a lymphocytosis, almost being mistaken for an acute lymphatic leukemia.

#### TREATMENT OF VINCENT'S INFECTION

Eminent authorities differ as to proper modes of treatment, and their contradictions are legion. We shall outline a few that we have found to be successful in our hands:

#### Home Treatment.

- (1) Discontinue use of toothbrush. Have patient use gauze.
- (2) *Absolute prohibition* of tobacco, alcohol, spices and acids.
- (3) Diet of milk, broth, eggs, chicken, fish, raw and cooked leafy vegetables, stewed fruit.
- (4) Eight oz. of orange juice daily. To this can be added lemon juice in the proportion of one part lemon juice to three parts orange.

- (5) Mouthwash to be used every hour:

Sodium

perborate 1 dram

Water (warm) 4 oz.

Mix fresh before using.

or

Salt (table) ¼ teaspoonful

Borax ¼ "

Peroxid of

hydrogen 1 tablespoonful

Water (hot) 1 glassful

Mix fresh before using.

- (6) Mild saline cathartic.
- (7) Aspirin for pain.
- (8) Use of separate dishes, glasses and eating utensils. Warning against kissing or otherwise spreading the disease.

#### Office Treatment.

- (1) Wash membrane or slough with spray of tincture of green soap, one dram of soap to four oz. of water. Then rinse with clean water.
- (2) Block salivary ducts with cotton rolls and saliva ejector, then apply the dry sodium-perborate powder to the mucous membrane and allow this to remain for five

minutes. Have patient rinse and then reapply same treatment.

or

- (3) Block mouth as before and apply chromic acid 8%, followed by compound tincture of benzooin.

or

- (4) Block mouth as before and apply neo-arsphenamin powder or in 10% solution in glycerine.

or

- (5) Block mouth as before and apply Churchill's tincture or iodine. Follow this immediately with 35% aqueous solution of silver nitrate. (This treatment has been suggested by J. F. Adams, D.D.S., of Toronto.) We have found this to be very effective in acute cases.

Kolmer suggests equal parts of an arsenical solution and 1:500 metaphen solution, in the belief that the other micro-organisms present will be destroyed.

The frequency of treatment varies with each case. Some must be seen at least twice daily, others daily, until the acute "flare-up" is under control.

The operator should familiarize himself with several forms of treatment,

as we have found that by alternating our various treatments we obtain better results. This is true of the chronic cases especially.

In the more severe cases hospitalization is necessary, where intravenous injections of salvarsan may be given. This is warranted especially when the infection is so extensive and intensive as to produce a profound depression. When healing of tissue has taken place, then the teeth may be thoroughly scaled and polished. No surgery nor extractions should be attempted for at least two weeks after the symptoms have subsided and the smear is negative for Vincent's organisms.

*In the last analysis* successful treatment depends upon these factors:

- (1) The adjustment of chemotherapy to the bacteriology of the infection.
- (2) Meticulous attention to detail on the part of the patient as well as the dentist.
- (3) Frequent bacteriological control, with variations in chemotherapy as indicated.
- (4) Patience and persistence.

5 East 57th Street

(To be continued)





## Some Practical Aids to the Administration of Nitrous Oxid and Oxygen in Dental Practice\*

By LEONARD ORENS, M.D., New York, N. Y.

Permit me to assure you that I consider this both a privilege and an honor to be invited to give this paper this evening.

Every one here is familiar with a method of administration of nitrous oxid and oxygen for dental anesthesia. All of us seek the same objective, a smooth and safe anesthesia, and we are eager and willing to learn and adopt any suggestions or devices that will aid us to reach our goal. Unfortunately, all anesthetics are not smooth. There is no standardized method which insures smooth anesthesia in all cases or even in most cases. The pitfalls are many, and, while we get excellent anesthesia in one case, we may use exactly the same method in the next case and experience great difficulty. Even among our so-called *normal* people there is great variation. Our difficulties vary from slight struggling to no struggling—death. At this point may I remind you that nitrous oxid can cause death—and it is well to bear this in mind.

It is not my purpose to consider the method or rudiments of anesthesia. I have chosen to speak of some of the things that frequently annoy us during the administration of anesthesia, and which occasionally actually prevent us from giving a smooth anesthesia.

A satisfactory dental anesthesia

should fulfill the following requirements:

- (1) The patient shall have no consciousness of the operation, nor shall the patient feel any pain.
- (2) The patient shall remain quiet so that the surgeon may work without worry or interference.

I believe that the accomplishment of the preceding requirements can be obtained in most cases. The dental surgeon has more to contend with in his cases, for in most instances he is both anesthetist and operator. His field is the mouth, which of necessity must be open, and he frequently either inadvertently or unavoidably pushes the nasal inhaler up against the nares so that respiration is embarrassed. Furthermore, he usually does not have the advantages of premedication.

Successful anesthetics depend in a great measure upon the care and attention to details. Most patients come to the surgeon under strain and are more or less excited. They should not be made to wait any longer than is absolutely necessary before the operation. They should be comfortably seated in the chair. During examination they should be handled gently. If signs of nervousness are manifested, they should be reassured. It is always preferable to anesthetize a willing and confident patient. During induction a few kind words are quite helpful. Do not start to operate until the patient is anesthetized. Deep anesthesia is rarely

\* Read before the Society for the Advancement of General Anesthesia in Dentistry, New York, N. Y., October 20, 1930. (From a stenographic report.)

required for dental operations. It is not necessary to wait for the abolition of all reflexes before beginning to operate. I am sure you will all agree that it is much better to have the patient kick while in the chair than (if I may use the slang expression) to have him "kick off."

There are many guides which are used to keep us informed of the patient's condition during the operation—the eye signs, pulse, blood-pressure, color, type and rate of respiration, etc. Of these I have found the color and respiratory signs the most constant and useful in gas anesthesia. They are especially helpful for the dental surgeon, as they require no manipulation of the hands to elicit them. I have found it most convenient to use the ear for following color, noting it before the operation and observing it from time to time during the operation.

The many complications that may arise during anesthesia can in many cases be avoided. The most common of these are:

1. Asphyxia.
  - a. Cyanosis.
2. Struggling.
3. Vomiting.

#### ASPHYXIA

In the asphyxiated, respiration becomes irregular and jerky. Usually the muscles of the extremities are in clonic spasm; these may soon develop into tonic spasms. The patient becomes cyanosed. Later the respiration ceases. Even at this point, if the mask is promptly removed or oxygen administered, the patient's condition will soon improve in most cases. However, if at this stage the patient is permitted to

inspire nitrous oxid, death may quickly result. It is very important that the anesthetist be able to differentiate quickly between anesthesia and asphyxia. In order to insure smooth respiration, it is necessary to keep the airway clear. Occasionally a patient is anesthetized without difficulty, a short time afterward a throat curtain is inserted and the operation begun (when anesthesia is maintained solely by nasal inhaler), and we note signs either of asphyxia despite a liberal supply of oxygen or of the patient coming out of the anesthesia. Most commonly this is caused by one or more of the following:

- (1) Nasal obstruction.
- (2) Nasal inhaler pushed up against nares so as to impede or prevent breathing.
- (3) Operator inadvertently pushes the jaw down.
- (4) Throat pack blocking the airway or pushing down the tongue.
- (5) A leaking nasal inhaler.

In the cases of nasal obstruction nitrous oxid-oxygen can often be given with the aid of nasal tubes. A little care on the part of both the operator and the assistant will obviate the others.

#### CYANOSIS

Cyanosis is so frequently spoken of that I feel it is worthy of special mention. In the past the erroneous idea that cyanosis was necessary and safe was prevalent. Now we feel that surgical anesthesia is rarely if ever obtained when the patient is cyanosed because of asphyxial spasm and rigidity. The patient should always be pink. If ever in the least doubt, give more oxygen.

If there is any further doubt, discontinue the nitrous oxid.

#### STRUGGLING

Struggling may be voluntary or involuntary. It may last from the time the face-mask is applied to the beginning of unconsciousness. It occurs more frequently in men and then usually in the robust type. Its incidence is frequent among alcoholics. Premedication with morphin gr. 1/4 and atropin gr. 1/150 or hyoscine gr. 1/100 about one-half to one hour before operating diminishes struggling to a minimum or does away with it entirely. Cooperation here is quite important, and a few moments given in that cause are well spent. Forcing of the nitrous oxid for a rapid induction frequently causes patients to resist and may kill.

#### VOMITING

Vomiting may occur in any case where there has been ingestion of food three hours or sooner before the operation. It is preferable not to operate on a patient who has eaten three hours before the operation, unless it is an emergency case. If vomiting occurs, stop the anesthesia, remove the throat curtain and bring the head forward. When vomiting has ceased, anesthesia can be continued by the experienced. For beginners it is preferable to complete the operation under novocain anesthesia or to postpone the operation until the next day.

Nitrous oxid-oxygen may be given to children of six or over and, in some instances, even to children of four years of age. Children require a somewhat higher percentage of oxygen than adults. Whereas the average adult re-

quires approximately 7%-8%, the average child requires 9%-12% of oxygen. This applies to the aged also. In doubtful cases, i.e., cardiacs, toxic goiters, hypertension, etc., it is advisable to confer with the physician regarding the choice of anesthetic. It is preferable that this type of patient be kept lightly anesthetized, and that the period of anesthesia be as short as possible.

The most frequent untoward post-operative complications are dizziness, nausea, vomiting, retching and headache. The best treatment is the preventive, and that lies to a great extent in the hands of the anesthetist. These undesirable sequelæ occur most frequently in those cases where there was some degree of asphyxia. Another means of prevention is to avoid operating on patients who have eaten less than three hours before operation. If any of the aforesaid complications do occur, treatment is symptomatic.

#### ANALGESIA

Nitrous oxid-oxygen is being used by many dentists for analgesia, the relief of pain in painful dental operations. It is most successfully employed on those patients who are cooperative. The patient is instructed to breathe (20% oxygen and 80% nitrous oxid) through his nose, over which a nasal inhaler is applied. When he starts to have a feeling of numbness and stiffness about his fingertips, he is advised to snap his teeth together, and if the teeth feel like wooden pegs, the operator may start. He is further advised that should he feel pain he is to breathe entirely through his nose until the pain disappears. If he feels that he is about to lose consciousness, he is to breathe

through his mouth and by doing so will remain awake. In reality these patients are carried along in the first stage of anesthesia, and the operations are frequently not devoid of pain. It is useful in the preparation of teeth. Incising of abscesses or removal of vital pulps cannot be done successfully under analgesia.

Analgesia can be employed for a period of about thirty minutes without untoward effect; if continued longer, it is sometimes followed by nausea and headache. Even if it does not entirely obliterate pain, it has a field of usefulness in that the patient is relieved of much nervous apprehension and the fear of having dental work done.

#### CONCLUSION

In conclusion, let me emphasize the following points:

- (1) Before starting, always examine the machine to see that it is functioning properly.
- (2) Always have a reserve tank of nitrous oxid and oxygen ready.
- (3) A tank of carbon dioxide should be available.
- (4) Never turn off the oxygen until you stop the anesthesia—you may forget to turn it on again. If necessary, give a little more gas.
- (5) Induce slowly—you will probably save time. Remember that it sometimes takes three or four minutes to anesthetize a patient.
- (6) If in doubt as to a patient's condition, give more oxygen.
- (7) Cyanosis is neither safe nor desirable.

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#### DISCUSSION\*

By JAMES T. GWATHMEY, M.D., New York, N. Y.

I did not have the slightest idea what the author of one of the papers was going to say in regard to obstetrics and dentistry, but I certainly thoroughly agree with him that obstetrical cases should have dental care. I do not think that there are enough dentists connected with the general hospitals. I know that in New York and throughout the United States there are not so many as there should be.

I have been intimately connected with and am a graduate of the New York

Skin and Cancer Hospital, and I have been struck from time to time at the filthy mouths of men and women who come there for cancer treatment. In my experience in giving thousands of anesthetics for all cancer patients I do not remember a half-dozen who have had real good teeth, sound teeth. Most of them were filthy. I do not mean to say that teeth are the cause of cancer, but certainly such conditions do not help it. I have seen cancers, of course, from scraggly teeth and from constant irritation of some badly placed dental arch or some dental work, as has every one who is connected with cancer work.

We have some dentists connected with the New York Skin and Cancer

\* This is the discussion not only of the Orens paper published herewith but also of the Nathanson paper entitled *Dentistry in Relation to Obstetrics*, which was published in the December (1930) issue of THE DENTAL DIGEST.

Hospital, but as far as I know they are not very active. I think every patient, before he comes for an operation, should have his teeth thoroughly cleaned. It seems to me that it would prevent a lot of nausea and vomiting and distress afterward.

I agree with every word Dr. Nathan-son has uttered in regard to obstetrical cases, especially in regard to chloroform. Chloroform has no place today in our armamentarium. Bevan in Chicago and some one else wrote a classic paper about twelve or fifteen years ago in regard to deaths from chloroform occurring in young children four to six days after the anesthesia was given. As they related these cases, all of them had something very common in the occurrence, that is, that after the anesthetic the patient would wake up perfectly normal, then in a little while the intellect would appear more or less clouded and then would come irregular mutterings and incoherences; there was a sweetish breath, albumin in the urine, then cyanosis, then death. On autopsy they found fatty degeneration of the liver.

Personally I have seen two drams of chloroform produce fatty degeneration of the liver in a puppy when chloroform was given in oil by mouth. It was simply astounding to me that so small an amount of chloroform given to a dog would produce death. We gave it to anesthetize that dog on Saturday morning. As a control we anesthetized another dog with ether, giving exactly the same amount and in the same way. The chloroform anesthesia was the more perfect of the two, but both of them seemed to recover to a perfectly normal state later. But Monday morn-

ing the chloroformed dog was dead and the ether dog was perfectly normal. That experience made me determine to cut down on the chloroform.

There is only one class of patient to whom you can give chloroform without any danger whatever, that is, the alcoholic. I have given chloroform to an alcoholic where previously an attempt had been made to give him nitrous oxid and oxygen, and the patient had come so near death once or twice that they had had to postpone the operation. When I was told about this I foolishly tried nitrous oxid and ether, but finally I gave this patient chloroform and it was entirely satisfactory. The strange thing about it was that he came out of the chloroform anesthesia after an hour's operation just as normal persons come out of nitrous oxid and oxygen. That patient was accustomed to taking several drinks of whisky every day.

I know that chloroform is not used in Bevan's Clinic in Chicago, and I doubt if you can get any chloroform in the Mayo Clinic. I know that it is excluded from the Massachusetts General Hospital in Boston, and it should be excluded from every hospital. There is very little use for chloroform now when we have so many agents, and when preliminary medication is becoming so generally used.

The Doctor spoke about 50% of the mortalities occurring in the induction stage of anesthesia. The only disagreement with him in this statement would be that he has the estimate too low. I would say about 60% to 80% of the deaths from all anesthetics occur within the first ten minutes of the anesthesia. Very few patients die under an anesthetic after the anesthesia is initiated and the



anesthetic tension in the blood is thoroughly established. I have given anesthetics lasting four, five and six hours with nitrous oxid and oxygen where the patient has had premedication. It is very simple and easy. This is much easier than giving a half-dozen cases for dental surgery, because the dentist as already mentioned, is handicapped in the first place by the patient's lack of any preliminary medication. And he is handicapped in the second place, as one of the speakers has been handicapped tonight in his paper, in using only nitrous oxid and oxygen. And he gave us a splendid paper, even with this handicap.

Nitrous oxid has a 25% range of anesthesia between the anesthetic dose and death. It has a very narrow margin. It has the narrowest margin of any anesthetic as far as immediate death is concerned. Ethylene has a margin of 40%, and ether a margin of 100%.

In the different hospitals that I visit—and I am connected with several here in New York—I have seen time and again a patient carried with ether into the third stage, the person who was giving the anesthetic not knowing exactly where that patient was, and yet nothing happened. It is impossible to do this with nitrous oxid or ethylene or chloroform without having a fatality.

Ether is by far the safest anesthetic in the world today, and were it not for the nausea and vomiting following it, no other anesthetic would be thought of. We do away with the nausea and vomiting in a measure when we give it by rectum. Very seldom does a patient vomit when given ether and oil by rectum. We do this, for instance, in excision of the tongue or jaw, or where

there is a good deal of dental work to be done on the patient after the surgeon is through. I have seen patients at the Skin and Cancer Hospital undergo very extensive dental work and then the mouth is securely closed and probably not opened for a week or ten days. In the meantime, they feed that patient through the nose. If that patient vomited even once, it might possibly mean doing away with all the careful dental work, because the dental work was the special work in the case that I have in mind. It would be disastrous. I asked a nurse the other day at the Skin and Cancer Hospital what percentage of her patients vomited after the operation when they were given oil-ether colonic anesthesia, and she said she had been there two years and had not seen a patient vomit yet. I have seen them vomit after oil-ether. But they are more carefully prepared in hospitals than they are in other places.

I think the dentist is fearfully handicapped who uses only nitrous oxid and oxygen, for the reason stated—that ethylene is so much safer, and, as Yandell Henderson has said, explosion is the least of the hazards of anesthesia today. Why? Because we know that over 90% of the explosions with ethylene are caused by static electricity. If we do away with the possibility of static electricity, the dentist can use ethylene with perfect safety. I have never had an explosion with ethylene and yet I use it nearly every day and for very long operations. But, if the room is well ventilated, and if we see that there is no cautery used, and that any doctors or dentists who come in do not have lighted cigarettes in their



hands, we are perfectly safe. In fact, all hospitals now, whenever ethylene is used, have a sign up outside the operating room—"Ethylene is being used." And that cautions any and everybody to throw away lighted cigars and cigarettes that they might possibly be carrying.

If we pass the gases through water and have the tube and bag moistened inside, that simply automatically does away with the possibility of static electricity, if we have some moisture in the air outside. You can always test this by a hydrometer, which is a very inexpensive instrument. You can thus, with care, do away with static electricity altogether.

If I had a single explosion, I would stop using ethylene, but I never expect to have one.

Here is a letter, addressed to Dr. Feldman, that just contradicts flatly what I have said. It says:

"I would state that it is my opinion after a careful investigation that there is a real and serious hazard in the use of ethylene or ether in modern anesthesia apparatus in which the combustible gas or vapor is mixed with the oxygen or nitrous oxid and contained in or passed through rubber breathing bags and rubber tubing.

"This hazard is greatly increased by the practice of washing out the apparatus and the patient at the end of the procedure with oxygen-rich mixtures."

This letter is from Dr. Horatio Williams of the Department of Physiology of Columbia University. The writer is correct—you do increase the hazard of explosibility by that procedure.

None of these explosions, as far as

I know, have occurred with the apparatus I use (in which I have no monetary interest), and if I knew of a better one, I would not hesitate to use it and would not hesitate to get it. I do not know of a simpler apparatus, a safer or better one. The thing is—ethylene is so much safer.

There are patients who are anesthetized every day where the surgeon and especially the patient or people connected with him do not care to have that patient nauseated and vomiting and distressed after the operation. If you give just a small amount of ether, the chances are that the patient will vomit a little.

On the portable apparatus I have, quite often the nitrous oxid gives out or the ethylene gives out. I start off the anesthetic with nitrous oxid and oxygen and switch to ethylene and continue it, because the anesthetic properties of ethylene are half-way between ether and nitrous oxid in potency. You cannot get the relaxation with ethylene that you can with ether. But you can get twice the relaxation with ethylene that you can with nitrous oxid. Now, if the ethylene gives out during the operation and I have to go back to nitrous oxid while they are putting on a new tank, invariably there is a call from a surgeon that the patient is not relaxed and to give him some ether. I do not give them ether as a rule. It takes just a couple of minutes to change the small tanks and continue with ethylene. I turn on the ethylene and in three to five minutes that patient is relaxed again and perfectly quiet. Ethylene is much safer than nitrous oxid.

Another reason why I like ethylene is that you can keep a patient pink

throughout the operation. There are many patients whom you cannot keep pink with nitrous oxid. The latest findings are that if a patient is cyanosed in the slightest, it has some effect upon the liver. I think Dr. Nathanson's paper would carry that out tonight in the part where he refers to the liver cells being especially susceptible to the anesthetic when a woman is pregnant.

There is one thing that Dr. Orens's paper did not touch upon which I think is very important, and that is this:

Before I forget it, that paper mentioned about oxygen, washing out the apparatus and the patient with oxygen afterward. I never do that. The blood comes to the lungs at least twice a minute or probably four times a minute, and both ethylene and nitrous oxid are so much lighter than the other gases of the blood that as it reaches the lungs it is given off and the patient comes out immediately. There is no necessity for ever washing out the patient with oxygen at the conclusion of an operation.

In the last year another worker and I got a number of small rubber bags, toy ballons. (We did this work at the New York University College of Dentistry.) We filled these bags with a mixture such as we use in dentistry and such as we use in surgery, that is, from 10% to 15% oxygen and the balance ethylene, and inside of each toy bag we had a little spark-plug. We repeatedly tested this mixture and found it non-explosive.

That is hardly a fair test, however, because as the ethylene comes out into the air more oxygen is added to it, which does increase its explosibility. But we never had an explosion until we added

about 40% or 50% oxygen. But a mixture such as we use in dentistry, and also in surgery, is not explosive.

Nitrous oxid adds to the explosibility of the mixture, and so it is well, for instance, in initiating the anesthetic in either dentistry or surgery to start always with oxygen and carbon dioxid and then add nitrous oxid until the patient is nearly unconscious, thus eliminating the odor, after which the ethylene can be turned on. If you get the anesthetic tension in the blood established with the ethylene, it is easier to carry on the anesthesia indefinitely without any cyanosis and without any danger of explosion.

Dr. Henderson spoke to us at the twenty-fifth anniversary of the New York Society of Anesthetists last Saturday night, and he brought out a phase of anesthesia that is especially applicable to obstetricians and should be of interest to anyone who is intensely interested in the subject, as the reader of the paper tonight is that it is possible to save between 25,000 and 50,000 babies in the United States every year if we make a habit of expanding the lungs of the new-born with oxygen and 5% to 10% carbon dioxid, just as the baby is born, the idea being to clear up any atelectatic places that may be in the lungs of the new-born and getting a perfectly free development of the lungs. I think that that is worth consideration. Whether or not the obstetricians would think so is another matter, because any new technic involves a good deal of time and study and thought.

But I have gone a step farther than that in this way. In Cæsarean sections, for instance, just as the head is born

I turn off the ethylene, nitrous oxid, or both, and give the mother oxygen and carbon dioxid in an attempt to make the child cry before the cord is tied. And I think that is a better procedure than the procedure that Dr. Henderson suggested, and it is easier to do. The patient does not come out of the anesthetic entirely, even if you force the oxygen and carbon dioxid. And you can see quite a difference in the change before the cord is tied. It does not delay matters in the slightest.

I wish to congratulate the authors of both of these papers upon their very excellent presentations tonight.

M. Hillel Feldman, D.D.S., New York, N. Y.: With reference to the communication of Dr. Horatio B. Williams of the Department of Physiology of Columbia University to which Dr. Gwathmey referred, I wish to say that I spoke to Dr. Williams over the telephone this afternoon and I told him the technic Dr. Gwathmey and I had worked out, and that he had taken a considerable step backward in his opinion as expressed in this communication. I have an appointment with Dr. Williams in the next week to talk matters over with Dr. Gwathmey and myself. I am sure that the explosibility which Dr. Williams refers to as a hazard of ethylene does not apply to the technic we are using in our office today, with carbon dioxid as an inductive gas, and the elimination of nitrous oxid which supports the combustion, making the mixture still less explosive, and, in addition to that, having the gases pass through rubber which shows no sign nor tendency to friction by reason of the fact that all the parts are moist. We know that you can develop static

electricity by walking across a carpet, but you cannot develop a static spark by sprinkling that carpet with water. Therefore I say that if the gases are passed through a water machine and the rubber parts are moistened several times during the day, it is impossible to develop a static spark from the machine. With the combination of carbon dioxid to the extent of 10%, that makes the ethylene combination absolutely safe. I made that test in my own office by the production of sparks in the patient's mouth, and that makes me feel that I will convert Dr. Williams to our way of thinking that ethylene, used the way we use it, is comparatively safe—because nothing is absolutely sure—at least as safe as ether, as far as explosibility is concerned.

Dr. Gwathmey: I forgot to state that an article in *The Journal of The American Medical Association* gave an account of over 35,000 anesthetics with ethylene in the Mayo Clinic at Rochester, Minnesota, in which no explosions occurred. It also stated that if an explosion did occur, they would not use it again. That is my position. I know of about forty or fifty hospitals that have used ethylene over 100,000 times without any explosion. Explosions that have occurred have been more or less foolhardy, it seems to me; for instance, giving ethylene and then bringing a cautery to remove a carbuncle on the back of the neck within six or eight inches of a very explosive material. The ethylene might not be explosive in that bag, but as it approached the air it would be explosive.

Another thing that makes the possibility of an explosion with ethylene is

that ethylene floats in the air, whereas ether drops to the floor. If you have the room well ventilated, especially a dentist's room, there is no possibility, it seems to me, of an explosion. I should not like to advocate anything in which a patient runs a definite risk.

30 West 59th Street



[ORTHODONTIST RESPONSIBLE]

*The orthodontist's responsibility in regard to oral prophylaxis may be summed up as follows: A check-up should be made of the patient's general health and fitness for treatment, the patient's mouth should be restored to as healthy a state as is possible without orthodontia, and a trial treatment should be given in order to ascertain the patient's ability and willingness to cooperate in a mouth-hygiene program during the treatment. The selection and placing of the appliances should be done with the safety of the hard and soft tissues of the mouth uppermost in mind. The teeth and appliances should be cleaned and kept in order in the orthodontist's own office, the responsibility of the prophylaxis of the teeth and soft tissues resting squarely on the orthodontist's shoulders. In cases in which the law permits, the dental hygienist is the economic and logical person to carry the burden of the actual cleaning of the teeth and appliances. The patient should be instructed as to the home care of the mouth and should be in complete cooperation with the dental-office treatment.*

—RHOBOTHAM.

## A Compendium for the Pedodontia Clinic

By RALPH HOWARD BRODSKY, D.M.D., New York, N. Y.

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### PURPOSE

The purpose of this compendium is not to lay down any firm and fast rules as to the procedures in pedodontia but rather to suggest a general plan of the scope of the work in the clinic for children so that the results can be more uniform and the efficiency and functioning more complete. No attempt is made to delve deeply into any particular subject, as that can be accomplished through the medium of reference work elsewhere. An attempt is made, however, to outline the routine procedures so that one not thoroughly acquainted with correct clinical practice may find this an adequate adjunct.

No single health measure counts for more in preventing disease than the maintenance of a healthy state in the mouth; for through the mouth and its associated structures must pass all the food and air for the body, and these necessities may carry at any time a cargo of disease germs. Let us, therefore, consider each patient, not as so many cavities or missing teeth but as a definite entity, the cavities of which are a mere integral part.

### CHILD PSYCHOLOGY

The basis of success or adequate treatment in pedodontia depends largely upon one's knowledge and application of child psychology. A child may at some time in his experience

have been indelibly impressed with the fact that he had been subjected to pain or discomfort during an operative procedure and resultantly have developed a conditioned aversion for the dentist or clinic. In this type of individual it is imperative gradually to eliminate or eradicate this inhibition, or what might be termed a conditioned reflex, by means of superimposition in the form of gentle treatment and a rehabilitation of confidence in the doctor.

It may often be necessary, in order to gain the confidence of such a child, to devote several visits to the application of a pleasant-tasting medication without the infliction of any possible pain or discomfort—merely to convince him that it is possible to treat him without attendant pain. Once the confidence and assurance is reestablished, the operative procedures can gradually be assumed and instigated, and the child will invariably be cooperative.

Never dissimulate. If a procedure is to be slightly uncomfortable, it is better to exaggerate the degree of discomfort and thus agreeably surprise the child. Distraction in many instances is effective. A scheme of mental games for this purpose often assists toward cooperation and only consumes a few moments for explanation. For example, a system of signals analogous to railroad signals may be employed by having the child raise his left index finger to



a certain level if a tooth becomes too warm during the process of burring. This is usually effective. Always stop the burring immediately upon receiving the correct signal, and by so doing gain the complete confidence of the child.

Once the child is actively cooperative, and the doctor fulfills his share of the program, operative procedures become relatively enjoyable to both patient and operator. Always be cognizant of the fact that, although a child may not discuss it, he is nevertheless appreciative of gentle treatment.

#### ORAL HYGIENE AND DIETETICS

Every child should be first instructed as to correct technic in the maintenance of oral hygiene prior to prophylactic treatment. It is advisable, wherever possible, to have clinical lectures given to the children and their parents in order to instruct them as to the need as well as to the correct methods of maintaining healthy conditions in the mouth. Charts and motion pictures are useful adjuncts from the standpoint of instruction. The question of dietetics is important and provision should be made as often as necessary to include this subject in the lectures. The following constitutes a balanced diet for the average child:

Breakfast: 7:00-8:00 a. m.

Fresh or stewed fruit—orange juice.

Cooked cereal with milk and sugar.

Soft-boiled or poached egg.

Toast or whole-wheat bread and butter.

Milk or cocoa.

Dinner: 12:00-1:00 p. m.

Soup or broth.

Meat:

Beef, broiled or roasted.

Lamb, broiled or roasted.

Lamb chop, broiled.

or

Fish:

Boiled, broiled or baked.

Vegetable:

Green peas, beans, lettuce, celery, spinach, carrots, beets, tomatoes, kale, stewed celery.

Potatoes, rice, macaroni, spaghetti.

Bread and butter, toast or whole-wheat bread.

Dessert:

Rice, sago, tapioca, bread puddings, junket, custard, jello, jelly.

Milk.

Supper: 6:00 p. m.

Cereal or rice with milk or sugar.

Eggs—poached or soft-boiled.

Bread and butter, toast or whole-wheat bread.

Stewed fruit.

Milk or cocoa.

#### EDUCATIONAL ACTIVITY

Educational procedures should involve the use of descriptive posters, individual instruction by the doctor and hygienist, group lectures to the children and their parents, and occasional delineative moving pictures. It is excellent, psychologically, to sandwich a short talk or demonstration, stressing only one or two important facts, between two non-professional motion pictures. By so doing, the children do not consider that they have subjected themselves to a lecture; they enjoy the pictures and, of necessity, depart car-



rying with them the one or two important oral facts thus presented.

No child should receive any professional treatment until it is ascertained that he has a toothbrush and a paste or powder, and that he knows how to use them.

#### ORTHODONTIA

Clinically, orthodontia may be divided into two groups:

- A. The appliance group.
- B. The muscle exercise and simple device group.

Certain types of the advanced orthodontic conditions obviously require appliances for their correction. There are, however, a vast number of children who manifest incipient orthodontic conditions which may be treated by means of muscle exercises and such devices as the use of a tongue depressor or rubber-cork wedge. For example, a relatively common condition such as a crossed bite in the incisors can be easily corrected by instructing the child to use a tongue depressor as an inclined plane, and this as frequently as possible. Results can often be observed within a period of one to two weeks. In all orthodontia, and more particularly in the appliance phase of this specialty, it is well to remember that simple mechanics is the best mechanics. In the field of oral diagnosis it is well to bear in mind preventive orthodontia.

Mouths which manifest spaces due to the premature loss of deciduous teeth or permanent teeth which could not have been saved should be treated in such a manner that migration of the teeth will be precluded. This can be effectuated by means of banding the

teeth on either side of the space and connecting the bands with a thin wire. The wire should be high enough to occlude with the opposing tooth or teeth so as to prevent elongation of the tooth. This device should be retained until the permanent teeth are erupting, no longer necessitating the use of the appliance, or, if the permanent tooth is lost, until it is desirable to construct a prosthetic restoration for the space.

#### ROOT THERAPY

Root therapy in children may still be classified as an experimental procedure, although in the writer's practice it has been successfully perpetrated for a period of seven years. To be of clinical significance it must be a procedure of great simplicity, requiring usually not more than two or three visits. The need is so apparent that little explanation is necessary. We recognize that premature loss of the dentigerous apparatus may result in constricted development of the maxillae and resultantly affect the development of the paranasal sinuses, the musculature, and hence the bony structure of the entire head. Although not usually recognized, it becomes a serious problem. The old theory that root therapy cannot be practiced in children due to the incompleteness of formation of the roots of the teeth can be completely ruled out. There is ample clinical, bacteriological and radiographic evidence to prove that the writer's technic has resulted in a healthy osteogenic process about the apices of the teeth thus treated, and in the case of deciduous teeth their roots are absorbed in the usual manner. The bone of children

is quite plastic and hence quite amenable to adequate assistance.

Root therapy should not be practiced in the mouths of children who exhibit organic involvements such as nephritic, cardiac or extreme malnutritional manifestations, for in these cases repair is usually poor. It is safer to remove the involved teeth and employ mechanical space-retainers.

#### TECHNIC

The technic which has proved satisfactory may be explained as follows:

Deciduous or permanent teeth which have involved pulps or are already pulpless may be treated. Because of the fact that we are using a very powerful germicide and hermetically sealing the canal, the rubber dam may be dispensed with, utilizing instead large cotton rolls or gauze sponges. The tooth is first radiographed. Then we decide as to the procedure. In anterior teeth as far back as the bicuspid we may decide to fill the tooth involved immediately and then perform a simple periapical curettage or an apicoectomy. In these cases we need not take precaution in not forcing the medication or filling beyond the apex, for the surgical intervention will care for the excess. However, in the teeth not to be opened periapically, care should be taken not to force the medication beyond the root tip.

The pulp chamber is opened; the canal or canals (being large and easily accessible in children) are opened and cleaned. The entire exposed area (coronal portion of tooth, pulp chamber and canal or canals) is heavily coated with a good cavity lining or collodion and then allowed to harden

thoroughly. If the lining is not completely hardened, the medication will diffuse through it and stain the tooth. Then an ammoniacal solution of silver nitrate is carried into the pulp chamber and by capillarity allowed to reach the tooth apex. It may be gently assisted by the use of a pulp-canal file. Two or three minutes are allowed for penetration. Should some of the solution pass beyond the apex without instrumentation, by virtue of its property of coagulating albuminous material, a small coagulum will be formed, which incidentally will act as a seal.

Then the canal is flooded with eugenol and again two to three minutes allowed to elapse. Eugenol is used as the precipitant by virtue of the fact that it is an anodyne and hence is soothing. Formalin is a more rapid precipitant, but its irritating influence makes eugenol the medication of choice.

A strong light such as an antrum lamp held close to the tooth or the reflected sun's rays will expedite the silver reduction from the solution. If the tooth being treated is a posterior tooth, this medication may be repeated at one or two subsequent visits. If the tooth is to receive surgical treatment, the root filling is now inserted. This consists of a thin plastic mixture of zinc oxid-eugenol and silver nitrate, which is pumped into the canal (again the root file is helpful). This may be followed by a gutta-percha point to act as a plunger and reinforce the filling. Then radiograph. We are now ready for the curettage or apicoectomy.

#### PERIAPICAL CURETTAGE AND APIOECTOMY

In the mouths of children this

procedure is extremely simple and repair is usually quite rapid. It may be employed routinely in involvements of the incisors and bicuspid of either jaw, being, of course, cautious while operating in the region of the antra.

The armamentarium consists of: a good light, scalpel, periosteal elevator, a few large (Nos. 3 and 4) cross-cut fissure burs, a large and small curette, alcohol, phenol, suture and needle, dressing instruments and sterile gauze sponges. A sterile tray should be prepared and the instruments (sterile) arranged in the order of their use. The handpiece of the engine should be washed with alcohol. The anesthetic of choice is novocain and should be injected around the involved area, but not into it, as this would cause additional and unnecessary trauma to the tissues.

A semi-lunar incision is made wide enough to reach one or two teeth on either side of the tooth to be operated upon. Reflect the flap of the mucosa, and then, using the elevator, gouge or a bur, open a window in the thin bony plate, thus exposing the apex of the tooth. If apicoectomy is decided upon, bur the tip of the tooth and round all the edges. If the root filling is not adequate, the tip of the tooth may now be filled through this operative field. To continue—proceed with the use of the curettes in eliminating the cut apex of the tooth (if apicoectomy is performed), or, if a simple periapical curettage is done, remove every vestige of granulation, soft infected bone, excess filling, etc., until good healthy bone is felt throughout. Then, using cotton applicators, swab the area with phenol and follow with a second swab

containing alcohol. Clean the wound, bring the flap into position, coaptate the edges and suture, using a medium-sized dermis suture. Cover the wound with a piece of iodoform gauze one inch wide and about two inches long. The patient may remove this after the lapse of one hour.

The patient is now instructed to apply a cold compress extra-orally over the region, five minutes on and ten minutes off, and alternating continuously until he goes to sleep. Warm saline mouthwashes are employed every hour. Sedatives, liquid diet and laxatives, if necessary, are prescribed as indicated. The sutures may be removed in from three to six days. Usually, after one week, there is little evidence of surgical intervention. The tooth should be radiographed and further check-up radiographs taken every four months.

#### OPERATIVE DENTISTRY

It is our duty before instituting a procedure for operative dentistry to have a comprehensive picture of the patient as an entity, for an unhealthy child with a predisposition for caries will often require a treatment different from that given to a normal, well-developed child.

*Pits and Fissures.* Prophylactic odontotomy in principle is effective, but I am not of the opinion that every molar and bicuspid requires this radical treatment. Reduction of silver on these teeth from an ammoniacal solution of silver nitrate is painless, simple, effective, and can be repeated as often as desirable without discomfort to the patient.

*Anodyne Dressings.* Deep-seated caries may be treated by first excavat-

ing, gently, the soft caries, utilizing warm phenol for this process. Then a dressing of zinc oxid, eugenol and silver nitrate is inserted in the cavity and allowed to remain for a period of from several days to several weeks. Sometimes it is desirable to keep the dressing in place for a longer period. This may be effectuated by reinforcing the mixture with a few absorbent cotton fibers.

*Pulp Exposures.* Exposed pulps may be capped with a thin layer of a soft mixture of zinc oxid and eugenol. Silver nitrate is precipitated directly over this capping. By virtue of the irritating influence of the silver nitrate the odontoblasts are stimulated to produce a secondary deposition of dentin, which acts as a protective covering overlying the exposure. If, after a period of a week or longer, there is no uncomfortable reaction, a cement base is placed over the capping and the tooth filled in the usual manner.

*Cement Fillings.* The most valuable cements in pedodontia might be categorized as the germicidal cements. Of these the type such as the red oxyphosphate of copper seems to have distinct advantages over the ordinary cements and often may be retained for a period of one or two years.

It is sometimes advantageous not to discommode a child who manifests caries in deciduous teeth which are shortly to be exfoliated. In these conditions one need not spend much time in the preparation of the cavity, but seal the cavity with a germicidal cement and thus prevent the spread of the condition as well as making it possible for the child to utilize the tooth.

*Silicates.* Silicate fillings have a distinct place in pedodontia, and that is

only in the mouths of older children. Very rarely should silicates be employed in children under thirteen years of age for the reason that the pulps are usually quite large and hence the cavity preparation does not permit sufficient space for the utilization of an adequate insulating medium. Tooth forms filled with silicates may be satisfactorily utilized in marked enamel hypoplastic conditions in clinical patients as a panacea until the child's earning capacity becomes great enough to enable him to obtain porcelain jacket or similar restorations.

*Amalgam.* Copper amalgam may be utilized in the mouths of children, but priority should be given to silver amalgam. The secret of success in the use of silver amalgam might be summed up, as follows:

- (1) Good cavity preparation.
- (2) Trituration or mixing of the amalgam for three minutes or until the alloy is thoroughly incorporated.
- (3) Complete condensation of the amalgam in the cavity.

It is often possible to save a very badly broken-down molar by utilizing a copper band fitted to the tooth and the occlusion, and, after obtaining as many retention areas as possible on the tooth, pack amalgam between the tooth and the band. Permit the band to remain in situ and remove it at some subsequent time.

It is a good practice to select most of the instruments required for each case prior to treating the child and thus conserve time. Sharp chisels and excavators are not a luxury but an absolute necessity. The art of gentle treatment should be manifest at all times.

### ORAL RADIOGRAPHY

Radiography in pedodontia is indispensable for many conditions and should be utilized wherever there is the slightest question concerning any involvement. Deciduous teeth are unfortunately removed by some, simply because the child has reached a certain age, without regard as to whether or not there may be a congenital loss of the permanent tooth-buds. These deciduous teeth usually would remain with the patient indefinitely, provided they received proper attention.

The radiograph has its distinct usage in the diagnosis and treatment of such conditions as cysts, impactions, retained roots, neoplasms, supernumerary teeth, root therapy, pulpal calcifications, bone whorls and the various pathological and anomalous conditions. Not only is the radiograph essential, but also is the correct interpretation of vital necessity. One should be able to recognize and look for not only the shadows cast by the common periapical abscess but all of the conditions which may be manifest in the mouth.

### ORAL SURGERY

Oral surgery in the pedodontia clinic embraces practically every phase of surgery of the mouth. The exodontic procedures are naturally the most prevalent. It is advisable to designate certain sessions during the week as surgical clinics. By so doing, a responsible surgeon can be present to cope with the emergencies as they arise, and the anesthetics and armamentaria can all be prepared and in readiness, thus increasing the efficiency of the clinic.

Conditions such as cysts, impactions, clefts, neoplasms, abnormal frena

labiorum, etc., are treated in the usual manner. Apicoectomies and periapical curettages, I am convinced, have a distinct utilitarian value in a clinic for children, for the operative interference is simple, of short duration, and the bone in children is relatively plastic and the reparative processes usually better than those in adults.

Absolute surgical asepsis is not possible in the mouth, but we must make an attempt to approach it in the important phases of surgery and observe absolute cleanliness in the other phases. Where an autoclave is not available, small porcelain-lined trays which may be boiled in the sterilizer can be used to hold the surgical operative instruments, gauze, sutures, etc., in a sterile condition. Routinely, it is better psychologically to place the instruments in back of the child patient on a movable instrument-stand. This brings the instruments closer to the operator and out of sight of the child. In the extraction of deciduous teeth the small baby forceps are quite adequate and obviously preferable to the larger forceps. Mastery in the use of the straight-shank elevator for the removal of teeth has a decided advantage, psychologically, over the use of forceps and larger cumbersome instruments. Thoroughly know what to do and how to do it before attempting any form of surgery. Good surgery and the least possible trauma are synonymous.

### GENERAL ANESTHESIA

There are several types of conditions in the pedodontia clinic which warrant the utilization of general anesthesia:

- (1) The condition necessitating the



removal of a number of infected teeth or broken-down roots.

- (2) The unruly, pampered or unco-operative child in need of immediate surgical intervention.
- (3) The extensive suppurative involvements in the field of which local anesthesia is contra-indicated.

The great majority of these conditions can be treated in a period of from one to four minutes of actual operating time, and for such operations the anesthetic of choice, in the writer's opinion, is ethyl chlorid administered by means of the open method (the Yankauer mask). All instrumentaria, etc., should be prepared prior to induction of the anesthesia. A towel is then placed over the eyes of the patient, who is in a semi-recumbent position, while the anesthetist is spraying the ethyl chlorid into the mask. The mask is then gradually placed over the nose and mouth of the patient and supported in the palm of the left hand so that the thumb, index and middle fingers support the mask while the other two fingers support the chin, thus immobilizing the head and preventing unmasking the patient during the process of the administration of the anesthetic. The other hand is free to hold the tube containing the ethyl chlorid, which is sprayed in a rotating motion on the two or three layers of gauze which cover the mask. The average induction requires between thirty and forty-five seconds of actual spraying, using the Gebauer type tube with a heavy spray. Dilatation of the pupil of the eye is a reasonably good index as to the stage of surgical anesthesia.

The mask is quickly removed and

the mouth is forced open by means of tongue depressors or a mouth prop while the operator loses no time in performing his operation. In any questionable cases it is advisable to insert quickly a throat pack attached to a long string immediately after forcing the mouth open and prior to the surgery, thus preventing the possibility of aspiration of foreign or septic matter into the lungs.

Upon completion of the surgery the head is carried forward, cold water is applied to the face and forehead, and a small piece of gauze saturated with aromatic spirits of ammonia is held under the nose of the patient. As soon as the child is receptive, inform him that everything is completed, and that as soon as he feels well he may go home. This information will psychologically assist in preventing a remonstrance as the child regains consciousness, and he will invariably cooperate and rest quietly, whereas otherwise he might tend to fight and resent every procedure, feeling that the operation is still in progress. After the child has rested for a period of from three to five minutes (the ethyl chlorid is usually quite adequately expelled from the system), he may be allowed to rest in an adjoining room (or waiting room) for an additional five or ten minutes and then permitted to go home. Under proper administration the post-operative effects are almost nil. The method may be employed with cardiacs or nephritics, for the procedure is as safe and simple as we today command.

#### LOCAL ANESTHESIA

The technic most commonly employed in the mouths of children



involves the use of the straight-line mandibular, post-tuberosity and simple infiltration injections. Each field of operation is thoroughly cleansed and iodinated immediately prior to the insertion of the needle. Topical anesthesia in the form of medication, or, better, by means of digital compression on the mucous membrane and then quickly inserting the needle in the tissue under the finger which is pressing, results in the child feeling the finger-pressure, which is not at all uncomfortable, but he is usually not aware of the prick of the needle. The method of gentle administration with as little pressure on the plunger of the syringe as possible, permitting gradual infiltration of the novocain into the tissues with no rapid distention of the tissue cells, will result in minimized post-operative discomfort.

Routinely, a solution of  $1\frac{1}{2}\%$  of novocain is adequate. Freshly prepared solutions are preferable to the stock solutions, because (1) no preservative is necessary and hence that much irritation is eliminated and (2) the probability of contamination is reduced to a minimum.

The solution is prepared by boiling the distilled water in a sterile novocain cup or dissolver; then add the required number of novocain tablets to bring the solution to  $1\frac{1}{2}\%$  novocain. Now, again hold the solution over the flame, but do not allow it to boil, for boiling disintegrates the epinephrin in the solution. The salts in the tablets are sufficient to make the solution isotonic without the need for Ringer's tablets.

Boilable glass syringes, completely sterilized after each usage, are obviously preferable to syringes requiring chem-

ical sterilization. In the mouths of children rarely is it necessary to resort to the use of a needle more than one inch in length.

Always use the technic during the injecting which will permit the syringe to follow the path of every possible movement of the head. It matters little whether two or four cubic centimeters of the solution are injected, provided that the solution is allowed to be absorbed gradually without unnecessary pressure, for the body can well tolerate the solution, although, however, it is preferable not to use more than is necessary at any time. Always try to use the solution at body temperature. Idiosyncrasies are comparatively rare.

#### GENERAL CLINICAL DEPARTMENT

A doctor should almost automatically scrub his hands before and after the treatment of every patient. Should he be called to answer an urgent telephone call or be subjected to some analogous interruption, he again should wash his hands before and after and then resume his treatment of the patient.

The nails should be short and rounded and always clean.

All cuts and abrasions on the hands should be medicated and, if possible, covered with cotton, which is then collodionized.

Operating gowns should be properly adjusted and should be clean.

It is psychologically incorrect for the doctor to smoke in a clinic or operating room.

Doctors are expected to be punctual at all times.

All operative and surgical cutting

instruments should be routinely sharpened.

*Staff Appointments.* A system of gradation such as clinical assistants, adjuncts and associates is necessary as an incentive to the staff, so that ade-

quate recognition may be given to those commanding it for the services rendered and the ability manifested during their rendition.

205 West 57th Street



[PULPLESS TEETH]

*In passing, it may be mentioned that the agitation concerning pulpless teeth has done much good in the way of inducing men to clean up infection in the mouths of their patients, even though, in too many instances, what has been accomplished through the sacrifice of the teeth should have been done through the medium of proper treatment and preservation of the teeth. It requires a long time to find our balance when it has been lost.*

—JOHNSON.

## An Outline of Vincent's Infection

By WALTER H. JACOBS, B.S., D.D.S., New York, N. Y.

### I. Definition.

Vincent's infection is an acute, contagious, ulceromembranous stomatitis caused by Vincent's spirochete and a fusiform bacillus.

### II. Terminology.

- A. Vincent's infection (Committee of Nomenclature, A.D.A.).
- B. Vincent's angina (when infection is in the throat).
- C. Vincent's disease.
- D. Vincent's gingivitis.
- E. Vincent's stomatitis.
- F. Plaut's disease.
- G. Plaut's-Vincent's infection.
- H. Trench mouth.
- I. Ulcerative stomatitis.
- J. Ulceromembranous angina.
- K. Acute ulcerative gingivitis.
- L. Phlegmonous stomatitis.
- M. Putrid sore mouth.
- N. Fusiform gingivitis.

### III. Bacteriology.

The organisms of Vincent's infection are normal inhabitants of the oral cavity, living in a fusospirillary symbiosis.

- A. Fusiform bacillus.
  1. Gram negative.
  2. Non-spore-forming.
  3. Anaerobic.
  4. Non-motile.
  5. 8-14  $\mu$  long—about 1  $\mu$  thick.
  6. May be straight or slightly curved.

7. Stains with carbolfuchsin and basic dyes.
8. Saprophytic.

### B. Vincent's spirochete.

1. Gram negative.
2. Anaerobic.
3. Stains feebly with basic dyes.
4. Motile.
5. Longer than fusiform bacillus.
6. Irregularly curved.
7. Differs from spirochete pallida, as follows:
  - a. Stains feebly with basic dyes.
  - b. Thicker.
  - c. Has fewer spirals.
  - d. No geometric regularity to spirals.

### IV. Etiology.

#### A. Predisposing causes.

1. Local.
  - a. Inflamed gums.
  - b. Caries (severe).
  - c. Traumatic occlusion.
  - d. Tobacco.
  - e. Irritation from faulty dental restorations.
  - f. Retention of decayed food about teeth.
  - g. Pericoronal infections (flaps over unerupted teeth).
  - h. Bad oral hygiene.
2. General.
  - a. Faulty diet.
  - b. Extreme fatigue.

- c. Poor hygiene.
- d. Overexposure.
- e. Alcoholism.
- f. Cachexia.
  - (1) Syphilis.
  - (2) Cancer.
  - (3) Diabetes.
- g. Scurvy.
- h. Metallic poisoning.
  - (1) Phosphorus.
  - (2) Lead.
  - (3) Mercury.
- i. Anemias.

B. Direct (contact).

- 1. Kissing.
- 2. Drinking receptacles (cups, glasses).
- 3. Tableware.
- 4. Cigars and cigarettes.
- 5. Lipstick.
- 6. Pencils.
- 7. Toothbrushes.
- 8. Candy.

V. Symptoms.

A. Subjective.

- 1. Pain.
  - a. On mastication.
  - b. On using toothbrush.
  - c. On movement of lips.
  - d. On pressure on gingivæ, especially interproximally.
- 2. Bleeding of gingivæ.
  - a. On slightest trauma.
  - b. May occur at night.
  - c. Especially interdental papillæ.
- 3. Excessive amount of saliva.
  - a. Saliva becomes thick andropy.
  - b. Constant drooling.

- 4. Throat irritated and sore.
- 5. Teeth become loose.
- 6. Nausea.
  - a. Headache.
  - b. Malaise.
  - c. Lassitude.
- 7. Anorexia.
- 8. Dysphagia.
- 9. Metallic taste in mouth.
- 10. Joint pains may be present.
- 11. Tongue very tender.

B. Objective.

- 1. Odor.
  - a. Characteristic fetid odor of necrotic tissue, once recognized, will not be mistaken.
- 2. Dirty gray slough on gingivæ.
  - a. Wipes off easily, leaving a raw, bleeding surface.
- 3. Sublingual and submaxillary glands may be swollen and painful.
- 4. Increase in pulse rate—84 to 100.
- 5. Temperature may rise—99 to 100.
- 6. Coating prominent on tongue.

VI. Diagnosis.

A. By especially observing:

- 1. Odor.
- 2. Bleeding.
- 3. Pain.
- 4. Sudden onset.
- 5. Bacteriological smear showing fusiform bacillus and Vincent's spirochete to the near exclu-

sion of all other forms of micro-organisms.

#### VII. Prognosis.

- A. Usually favorable.
  1. When diagnosed in time.
  2. When proper treatment is carried out.
  3. When patient cooperates in home treatment.
- B. Neglect may lead to:
  1. Deep infection of underlying tissue, with necrosis of bone.
  2. Noma.
  3. Pneumonia.

#### VIII. Treatment.

Vincent's infection yields to local treatment.

##### A. Office.

1. Specifics—for Vincent's spirochete.
  - a. 10% neosalvarsan in glycerin.
  - b. Fowler's solution.
  - c. Powdered salvarsan. Care must be used, as this may cause sloughing.
2. Oxygen-liberating drugs for fusiform bacillus.
  - a. Sodium perborate.
  - b. Potassium permanganate.
  - c. Potassium chlorate.
  - d. Hydrogen peroxid.
3. Bactericidals.
  - a. Silver nitrate, 2%-4%.
  - b. Bichlorid of mercury, 1/1000.
  - c. Copper sulphate, 1%-4.5%.
  - d. Formaldehyde, 5%.

- e. Phenol, 5% in glycerin.
- f. Trichloroacetic acid.
- g. Chromic acid.
- h. Tricresol, 5% in alcohol.
- i. Argyrol.
- j. Sodium ricinoleate. Disadvantage—may cause sloughing of tissue, due to escharotic acid of most of these drugs.

##### 4. Dyes.

- a. Methylene blue.
- b. Mercurochrome, 5%.
- c. Gentian violet.
- d. Acriviolet.

Disadvantages—

- (1) Not always efficient.
- (2) Chemically unstable.
- (3) Stains teeth.
- (4) Dirty to work with.

##### B. Home.

1. Sodium perborate mouth-wash.
  - a. Teaspoonful in  $\frac{3}{4}$  glass of tepid water.
  - b. Every half hour on first day, every hour thereafter.
2. Institute toothbrush drill and massage, with proper care of the mouth as soon as acute symptoms have subsided.

*The most efficient form of treatment as recognized by the majority of authors is:*

*Office—local application of*



10% *neosalvarsan* in glycerin.  
Home—sodium perborate  
mouthwash.

IX. Constitutional treatment.

A. Combine medical assistance  
to combat:

1. Prevailing anemias.
2. Nutritional faults.

B. Prescribe:

1. Antipyretics for fever.
2. Saline cathartics.
3. Alteratives.
4. Anodyne for neuralgic  
pains.
5. Diet—fluid or semi-fluid.
  - a. 8 oz. orange juice  
daily.
  - b. Plenty of milk.
  - c. Chicken broth.
  - d. Fish.

- e. Stewed fruits.
- f. Raw and cooked leafy  
vegetables.
- g. No greasy foods.
- h. Eggs.

C. Prohibit:

1. Spices.
2. Tobacco in all forms.
3. Alcohol in all forms.

D. Instructions to patient.

1. Prevent abrasions in  
mouth.
2. Explain dangers of con-  
tagion. Patient to have  
own cups, toothbrush,  
eating utensils, glasses,  
etc.
3. Warn of recurrence un-  
less proper care is taken.

124 West 93rd Street



## International Dental Federation (F.D.I.)

Chairman: Viscount de Casa Aguilar, Madrid

Secretary: Geo. Villain, Paris

Treasurer: A. L. T. C. van Hasselt, The Hague

International Congress-Exposition of Dental Hygiene, Brussels, August 7-15, 1930

A Dental Hygiene Congress-Exposition was organized by the General Dental Society of Belgian Dentists aided by the Belgian Red Cross National Section for Child Welfare, the Society for Prevention of Tuberculosis, the Society for Preventive and Eugenic Medicine, the Society for Infants' Welfare, the Leagues against Venereal Diseases, Cancer and Rheumatism, and the Association of Ambulatory Clinics. Her Majesty, the Queen, graciously accorded her high patronage and deigned to visit the Dental Hygiene Exposition. The opening of the International Exposition of Dental Hygiene by Mr. Bielnick, who was delegated by the Minister of the Interior and of Hygiene, took place on August 7th.

The Congress was opened on August 8th, the chairman being Dr. Watry. Papers were read in the following order:

Dr. Gosærts (Belgium): *Hardiness of the Belgian Population.*

Dr. Courtois (Belgium): *Dental Service in a Sanatorium.*

Dr. Watry (Belgium):

(1) *Activity of the Belgian Red Cross in Dental Hygiene.*

(2) *Dental Hygiene, A Disregarded Social Question.*

Mr. Lourens-Bosch (Netherlands): *De Nederlandsche Maatschappij voor Tandbederf.*

Mr. Rowlett (England): *Organiza-*

*tion of Dental Hygiene in England.*

Dr. Bousquet (France): *Development of a Plan for Lectures on Dental Hygiene to Teachers and Instructors.*

Dr. Brun (Norway): *Organization of School Dental Hygiene in Norway.*

Dr. Ferrand (France): *Dental Hygiene in France.*

Dr. Dreyfus (Switzerland): *Rational Sucking and Its Influence on Mouth Hygiene.*

Dr. Konrad Cohn (Germany): *Activity of the German Society for Dental Treatment in Schools.*

Prof. Budtz-Jorgensen (Denmark): *School Dental Hygiene in Denmark.*

Mr. Shipway (England): *Industrial Dental Service in England.*

Mr. Bruske (Netherlands): *Activity of the Dental Hygiene Commission of the F. D. I.*

Dr. Watry (Belgium): *The Plan for Maxillo - Facial Orthopedics in School Hygiene.*

Dr. Frison (France): *Presentation of the Dental School-Clinic Film of the Ecole Odontotechnique de Paris Founded by Dr. Frison and Messrs. Lebrun and Sudaka.*

Dr. Boissier: *How Our Fathers Treated Themselves.*

At the final meeting in the Palais des Academies, which was honored by the presence of His Royal Highness the Duke of Brabant, at which Minister Baehn presided, Mr. Geo. Villain, Director of the Dental School of Paris and President of the International Congress of 1931, gave a report on the present state of dental hygiene.

A commission formed to consider propositions and resolutions resolved to accept the proposition of the F. D. I. Commission of Hygiene and, further, to found a Belgian League of Dental Hygiene. This new league was founded immediately and the organizing committee of the International Congress of Dental Hygiene will take the place of the temporary committee.

The International Exposition of Den-

tal Hygiene was highly interesting in every respect. There was a technical section, in which various countries exhibited, the principal ones being Germany, England, France, the Netherlands, Scandinavia and Belgium.

An exhibit of drawings was organized and met with enormous success. More than 2,000 drawings were forwarded to the Secretary.

A commercial section displayed various preparations for the treatment of teeth.

In addition, moving pictures were shown daily. Six French, one German, two English and a Dutch film were shown.

*Colleagues, visit the Eighth International Dental Congress at Paris in August, 1931.*

#### MOTTLED ENAMEL

A research on *Mottled Enamel* by the Nutrition Department of the University of Arizona, with Dr. Cammack Smith in charge, is under way. The University will greatly appreciate it if any members of the dental profession having extracted teeth of this type will send them to



ALEX BARD, D.D.S., *Chairman*,  
Consolidated Bank Bldg.,  
Tucson, Arizona.

#### NEW JAPANESE SOCIETY

On November 1, 1930, there was held in Tokyo the first meeting of the Japanese Dental Surgical Society. More than one thousand attended.

Plans were made for holding a meeting of the F.D.I. in Tokyo in 1935, and it was decided to send representatives to the F.D.I. Convention in Paris next summer. During the last two days of the meeting section meetings were held and various papers read.





# DIGESTS

## PRINCIPLES OF FIXED BRIDGE CONSTRUCTION

By ROBERT P. DRESSEL, D.D.S.

No extensive restorative work in the mouth should be started until all the teeth have been radiographed. Study models should be carefully made, especially in cases where the teeth are badly out of alignment.

The chief cause for failure in fixed bridgework is because the mouth has not been properly prepared and the work has been made only in reference to an open-and-shut bite, no attention having been given to lateral occlusion.

First of all, the remaining teeth should be brought into the best possible balance by spot-grinding to relieve cusp interference, and an attempt should be made to restore the compensating curve. Grinding of the mandibular anterior teeth is sometimes necessary to establish a three-point contact when the mandible is protruded.

The loosening of the abutment teeth is due more to improper lateral articulation than to the length of the span or the length of the roots or the condition of the alveolar process. Furthermore, the natural teeth wear down at a faster rate than the restoration, and

consequently the patient should be recalled at stated intervals so that this may be corrected by grinding. This will prevent much soreness and loosening of the abutment teeth. — *The Dental Cosmos*, November, 1930.

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## SYSTEMIC DISTURBANCES TRACEABLE TO INFECTED TEETH

By RUSSELL L. HADEN, D.D.S.

The author states that there are few tissues of the body in which bacteria from a dental focus of infection may not localize, but as a matter of clinical record only a few are found to be affected. The most common lesions are those of the locomotor system, the kidneys, heart, stomach, duodenum and eye.

The removal of the focus very frequently gives disappointing results, because when once the disease has started, merely eradicating the focus will have little effect. Consequently all foci of infection should be removed, if possible, before metastases have occurred. — *The Journal of the American Dental Association*, November, 1930.



## Foreign Dental Literature

Edited by JOHN JACOB POSNER, LL.B., D.D.S., New York, N. Y.

### ORAL SEPSIS, AS A DENTAL, MEDICAL AND SOCIAL PROBLEM

By H. EULER, Breslau, Germany

By focal infection is meant that bacteria harmful to the organism have gained entrance to the body and established themselves near the site of entry. From this primary focus the infection is carried to other parts of the body. It is of great importance that the primary infection be recognized as soon as possible to avoid spreading infection. The most important points of entry are the digestive tract, the respiratory system and the urological tract. The mouth is an important area of primary infection because of the teeth and tonsils. As early as 1818 Prof. Rush, of Pennsylvania, pointed out that there was a relationship existing between rheumatism and bad teeth. Patients who doubt that the teeth are bound up with the health may be convinced by indicating how the glands beneath the mandible become enlarged and tender when the teeth are infected. In a series of one hundred cases it has been shown that patients with severely infected teeth show a changed blood picture in consequence.

The effect of a focus of infection varies in different individuals. This is due to the natural or acquired immunity which they possess. Many patients have systemic disease caused by focal infection without knowing the whereabouts of the primary cause. This might be in the teeth, and a radiographic ex-

amination of all teeth should be demanded.

At the present time the author believes that there is a tendency toward too great a faith in conservative treatment for infected teeth. This is true in Germany, although in America the opinion is for the extraction of such teeth. When teeth are infected, showing large areas of destroyed bone, or, if left following surgical procedures they complicate healing, they should be removed.

In the beginning there was a large list of diseases attributed to dental origin, but this list has been considerably shortened. Among those still definitely related to the teeth are chronic rheumatism of the muscles and joints, neuritis, and the symptoms of a general sepsis, such as loss of appetite, increased temperature, rapid tiring, sleeplessness, headache, loss of weight and poor appearance. Now, all of these cases do not clear up when infected teeth are removed, but the percentage of healings is sufficient to warrant close attention to the interrelationship.

That there is a definite relation between diseased teeth and health was strikingly shown in the Liverpool Hospital, where a large number of children showed astonishingly rapid improvement in weight and health upon the removal of diseased teeth.

Diseases of the skin have been shown to disappear when infected teeth were removed. The same holds true with eye, ear, nose and throat conditions.

The social side of focal infection is



clearly indicated when it is recognized that one-sixth of the loss of time of the laboring class was put down as caused by rheumatism. Furthermore, 72% of these cases were attributable to infected teeth. Billings found that in 577 cases of joint rheumatism the teeth were the cause of 136 of them.

It must be borne in mind that many cases of joint disease and others have been of such long duration that the removal of the primary cause can no longer be of help. Then, too, there are many cases in which removal of the teeth failed to clear up the disease. — *Deutsche Zahnärztliche Wochenschrift*, August 5, 1930.

### AN ORIGINAL METHOD OF TREATING PULP INFLAMMATION

By DR. KONRAD SZEPELSKI,  
of Rostock University, Germany

In the therapy of diseases of the pulp there are two recognized methods of treatment. One is extirpation, the other amputation of the pulp. The pathological conditions of the pulp may be classed as deformity in development, progressive growth, degenerative growth, tumors and inflammations.

Real deformity of the pulp does not exist. It may appear as an accompanying phenomenon in tooth deformity. Pulpless teeth have never been reported. Multiple pulps also are unknown. Although single-rooted teeth have never more than a single pulp, it is known that teeth with extra roots have of course additional pulps and foramina. In secondary progressive change of the

pulp, which accompanies a pulp inflammation, there may be hypertrophy and polypus. Degenerative change and atrophy of the pulp are seen as a result of excess irritation to the tooth. Among the degenerative changes are the fatty and hyaline forms and calcific alteration.

Genuine tumors occur rather seldom in the pulp. In malignant growths metastasis into the pulp structure has been found. Nerves and blood-vessels are pushed aside by benign neoplasms, but in the malignant form there is definite infiltration of these structures with cancer cells. Hemorrhage of the pulp occurs in these cases.

By far the largest number of pulp diseases are the result of inflammation. There are many diseases of the pulp caused by pathological conditions, but only the inflammatory type demands the attention of the dentist because of the severe pain. Before the real inflammation develops, three distinct changes in the pulp may be observed, vacuolization, atrophy and fatty degeneration. Further progress in the inflammation causes a hyperemia, which is one of the true inflammatory changes. A partial serous or pus-producing inflammation can spread very quickly and involve the peridental membrane. In a second group of pulp symptoms the chronic form is reached. These present a definite picture with the pulp chamber closed, and the anatomical picture undergoes a further change if the pulp chamber is opened. The prognosis then depends upon the vitality of the pulp.

Diagnosis in pulp disease is very difficult, because the anatomical changes in this tissue do not correspond with clinical symptoms. Some authors de-

mand complete removal of a pathologically changed pulp. If that were really to be accepted, it would mean that there would be no place for pulp amputation. Both methods have their advantages.

It is necessary to determine just what is causing the infection in the pulp, and also to what extent there has been involvement of the pulp. In a closed pulpitis there is usually a mixed infection, but when the pulp has been exposed the pus-producing bacteria predominate. Partsch has shown that the entire pulp must be destroyed through infection before invasion through the apical end begins.

In the absence of destruction of the pulp, and without pus-producing bacteria, there is no reason for pulp extirpation.

As a rule, pulp inflammation is handled through devitalization. The usual agent is arsenic. Many authorities are disposed to eliminate arsenic as a dangerous drug. All other preparations have failed to devitalize the dental pulp. It is held that the effect of the arsenic does not stop with its action on the pulp but goes out into the periapical tissues and causes destruction there, depending upon the size of the apical opening. Schroeder believes that the technic of local anesthesia is so well developed that it can be accepted without question as the ideal means of removing pulps. After anesthesia of the pulp the author resorts to mummification. He uses the following mixture:

Alcohol	.....	3 parts
Acetic acid	....	1 "
Chloroform	....	3 "
Acetone	.....	5 "
Formalin	.....	3 "

This solution has a great devitalizing as well as mummifying action. Under local anesthesia the pulp chamber is opened, a bit of cotton dipped in the remedy inserted, and then sealed with cement. After a few days the pulp is mummified, the dressing may be removed and thymol formalin cement flowed over it. A permanent filling may then be inserted. Clinically this method has been successful.

The author refers to a series of sixteen cases in which the procedure followed was as given and uniform success resulted. No after-pain was encountered in any case. After two days all pulp tests were negative, showing the devitalizing action of the mixture. In every case there was mummification. No hemorrhage occurred. The dressing was left in for five days in some cases with no irritation. The permanent filling may be inserted after twenty-four hours. As an indication of the care in preparing the material in his paper the writer refers to seventy authorities consulted. — *Correspondenz-Blatt für Zahnärzte*, August, 1930.

## FRACTURES OF THE JAWS

By HANS MORAL and HANS SCHLAMPP,  
Rostock, Germany

There are three methods of handling fractures. These differ in various countries. Germany, Austria and Switzerland employ the functional method. France, England, America and Italy prefer immobilization. Bite-block methods have been given up. In Rostock the functional method is followed and found most efficient.

A fracture band which is fastened to one jaw is known as a monomaxillary

appliance. One that embraces both jaws is duomaxillary. One that lies between the jaws is intermaxillary, and finally there is the appliance which holds both jaws and works as a single device and is known as bimaxillary.

Surgeons sometimes hold together the ends of bone in a fractured mandible by fastening them with silver wire. This is poor practice, especially where there are teeth present to help restore and hold the occlusion. In a case reported silver wire was used on both sides of a fractured mandible, and healing did not occur until the wires were thrown out along with sequestered bone. It is one of the first rules of fracture work that teeth in line with the fracture must be removed. The only place where silver wire is still used is to hold together the mandibular fracture in edentulous cases or perhaps in the ascending ramus.

Fracture of the neck of the condyle is not uncommon. In one clinic, during the year, twenty-five cases were reported. The increase in number of condyle cases is explained by the fact that dentists see more of these cases than formerly and readily recognize the existence of fractures at this point. Physicians ordinarily look for a fracture in the body of the mandible. The physician, too, is unfamiliar with the normal occlusion and fails to take this into consideration in determining a fracture or the necessary restoration to the preexisting bite.

The authors quote the classification of Villain, of France, in fractures of the mandible, based upon the muscles involved:

- (1) Fracture within the opening musculature.

- (2) Fracture between opening and closing musculature of the mouth, as in the region of the six-year molar.
- (3) Fracture in the lower part of the closing musculature, as in the horizontal portion up to the angle.
- (4) Fracture in the upper part of the closing musculature, as in the ascending portion up to the sigmoid notch.
- (5) Fracture behind the closing musculature, as in the region of the head of the condyle.

This classification is excellent, as it indicates which muscles are connected with the point of fracture.

It is important to read the radiograph of the fracture correctly. Sometimes it may appear as if there are two fractures close to each other, but in reality it is a single fracture taken at an incorrect angle. This happens if the fracture is diagonally across the body of the mandible and the picture is taken at right angles.

The authors do not favor complete immobilization of the parts in the treatment of fracture, as is accomplished by metal or vulcanite splints. They quote Wassmund as being similarly inclined. He uses rubber bands fastened to wire arches in each jaw and can remove a few bands from time to time as the fracture heals and thereby allow a certain amount of mobility to the parts.

The use of the roentgen rays in the treatment of fractures to help healing has shown that strong dosages retard and weak dosages help the formation of bone structure.—*Die Fortschritte der Zahnheilkunde*, November, 1930.



## DENTAL ECONOMICS

### Dentistry—A Profession or a Business

By GEORGE WOOD CLAPP, D.D.S., New York, N. Y.

The author receives a letter objecting to what he considers a sound economic principle, hence the following reply.

I am in receipt of your letter objecting to a statement of mine, made about fifteen years ago, to wit: "Dentistry as a means of service is a profession; as a means of livelihood it is a business."

Well, I agree to an objection. When I wrote that sentence I was thinking of only one phase of dentistry, that impersonal schedule of study and service into which a dentist should fit his life. But fifteen more years of intimate acquaintance with the lives of dentists have taught me that while the statement is right for that aspect of dentistry, neither the thought nor the words are all-inclusive.

While I agree to an objection, I do not agree with the objection you make, the reasons for which you make it or the conclusions you draw from it. You pass the first half of the sentence without comment and concentrate your attack on the statement that dentistry as a means of livelihood is a business. You say that dentistry is a profession from beginning to end, that no aspect of it is a business, but that all of it is something much finer and better than business is or can be, and that even to

think of any phase of dentistry as a business is to degrade it from the high level on which it should stand in thought and esteem.

#### OBJECTIONS IN THE PROFESSIONS AND IN BUSINESS

Your reason for your position is that dentistry deals with issues of life and death, while you think business deals with only money or merchandise. You agree that the avowed purpose of a profession, especially that of medicine, is service beneficial to the recipient, but you think that the one aim of business is a cash profit, the quicker and larger the better. Furthermore, your sensibilities are graveled by the thought of money in connection with your occupation.

You admit that the professional man must have money with which to pay his bills and should therefore give a little attention to it, but you would like him to do so with his left hand or behind his back or, better yet, through his private secretary of the treasury, who, without his knowledge or consent, would get in much filthy lucre as the result of his labors, pay all his bills and keep on hand a large fund

into which he might dip for luxuries when desired. You seem to feel that any practical knowledge of money or planning for it or contact with it in connection with service for health and life is a blot on the escutcheon of the professional man—a sort of malodorous stigma on the bright shield which he holds forth to the world.

### IS DENTISTRY EITHER A PROFESSION OR A BUSINESS?

Because I do not in the least agree with your reasons or your conclusions, I am going to attack nearly everything that you have said and much that you have implied. I shall do this by trying to show how little of a profession dentistry is as it is generally practiced, that it is even less a business in a great number of offices, that where these limited perceptions govern the practice the results are bad for all concerned, and that everybody, patients first and dentists afterward, is much better off when the finest of professional knowledge and skill march hand in hand with the best of business principles and practice.

The simplest principles of good strategy dictate that before I attack your statements I should see to my own defenses. I shall let the sentence, "As a means of service dentistry is a profession; as a means of livelihood it is a business," stand for the vocation or calling of dentistry. Then I shall write another sentence, which may help complete the thought, and seek to apply it to the working lives of the more than 60,000 dentists in the United States: "Practically, dentistry ought to be a profession and a business."

But merely showing you the lines for my defenses is not establishing them,

and I want to build them so that even you will have to approve their structure. This can be done by setting forth some definitions with which I hope you will find it necessary to agree.

Long ago I divided dentistry as an occupation into three parts—a science, an art and a business. Let us learn what each of these terms means by studying generally accepted definitions of them.

### THE DEFINITION OF A PROFESSION

If you turn to the ten-volume edition of the Century dictionary, one volume of which lies open beside me as I write, you will find for the word *profession* this definition:

Specifically, a vocation in which a professed knowledge of some department of science or learning is used by its practical application to the affairs of others, either in advising, guiding or teaching them or in serving their interests or welfare in the practice of an art founded on it.

You will note that a profession is associated with an art but distinguished from it. A profession is also distinguished from any vocation which can be taken up and laid down at pleasure, such as storekeeping. And now, using this definition of a profession from a source which you cannot question, let me show you how the definition of a profession arose out of the lives of three great groups of men, and how the principles which they first unconsciously and then conscientiously promulgated must be incorporated into our lives. Keep it clearly in mind that the definition did not make the profession, but that the lives of these men made the definition possible.



### THE MEN WHO MADE THE DEFINITION POSSIBLE

Once upon a time there were three distinct groups of such men as the definition contemplates. They constituted the learned professions—the lawyers, the physicians and the preachers—and they fought valiantly against the world, the flesh and the devil.

Let me illustrate the characteristics of the service of these men whose joint labors have raised the professions so high in human esteem, by one of a thousand incidents in the life of what you might call a "primitive specimen," a backwoods doctor. Many years ago I was ill in a farmhouse in the mountains far from all the great medical centers. The doctor came on horseback. So rough were the conditions that he was always armed. In the midst of one visit he left my bedside and shot a man who had just shot his dog. He told those who were caring for me what he thought caused my illness and how to avoid it for themselves, left some medicine with directions for its use and for my care, promised to come again when he rode his circuit, and told them if I got worse to send a boy on horseback across the mountain for him.

That country doctor, all unknown to fame, exhibited in that visit all the great characteristics of the professional man. He sought for the causes of trouble and to have others avoid it. He diagnosed the existing trouble and showed what I could do for myself and what others could do for me to conquer it. And when self-help was insufficient, he left some of his personal help in the form of medicine and promised more help if that should prove insufficient.

So I picture to myself three great lines of opportunity and duty opening attractively and authoritatively before every professional man: (1) the search for the causes of trouble and the way to avoid it, (2) the teaching of self-help in avoidance or correction, and (3) service when self-help is insufficient. Three words summarize for me the great professional elements of life—seeking, teaching, serving.

### DEFLATING TWO DEFINITIONS

Before leaving this definition, let me deflate two other definitions which have gained some hearing. The first is that a profession is the one form of service which always gives more than it gets. No form of service can do that long if you use the same terms for what it gives and what it gets. What this definition tries to say is that the professional service that relieves my pain or saves my life is worth more to me than the money the physician gets for it, which is true. But the clothes that keep me dry and warm in wet, cold weather are worth more to me than their cost, and the train in which I ride is worth more than the price of my ticket. Business supplied the clothes and the train, so in respect to furnishing values greater than the cost the profession and the business are on the same level.

The other definition is that the professional man is always trying to talk himself out of business. That is all nonsense. He has never tried to do that, or if he has he has made the world's biggest failure. All that he has done is to talk himself into easier work, more work and work with better chances for success. Never before have there been so many professional men as there are

now. Never have they exercised so great an influence. Never have those of proved merit been so highly esteemed or so well followed or so liberally paid. It is in the very nature of things that the competent professional man cannot talk himself out of work. He talks himself into more than he can do and more effective work than would be possible but for his competency. If he is out of work, it is because of his own incompetency in some important way.

#### THE DEFINITION OF AN ART

And now, having seen that a profession is a vocation of seeking, teaching and serving, let us study the definition of an *art*.

When science has found out what is the matter with a sick person and what he ought to do for himself and others ought to do for him, it is through, except to see that whatever is done is suitable. But somebody must do what the science has directed in such way as to meet the end required by science. In dentistry that may mean extractions or repairs or replacements. And the knowing how to do the thing in such way as to produce the required result is the *art*.

For instance, science tells us that the health of an edentulous person requires that he be able to masticate hard or fibrous foods, such as uncooked fruits and vegetables, and that that end is achieved only by stability of artificial dentures and the exact interaction of a considerable number of small, sharp-edged facets on opposing teeth. But science may not be able to make the dentures stable or properly oppose the teeth, while the art may know how to

do both things. Skill of hand must be added to knowledge.

The same dictionary that defined for us the word *profession* says that the word *art* comes from a root which means "skill in fitting or joining." It then gives eight applications of the definition to different affairs of life. The fourth application will interest us most. It reads: "A system of rules and traditional methods for facilitating the performance of certain actions; acquaintance with such rules or skill in applying them, . . . as in any technical profession . . . as in the healing art, etc."

You will see, therefore, that an art is closely associated with a profession, so closely, in fact, that it is often mistaken for a profession by people who should know much better. I always think of it as the basement of a profession, and it never seems to me to get up into the library or the music room.

#### THE DEFINITION OF A BUSINESS

I shall have to close this letter with a definition of that term to the use of which, as in any way associated with a profession, you so strenuously object—the word *business*. Our dictionary tells us that it is whatever keeps a man busy, "specifically, that which occupies one's time, attention and labor as his chief concern; that which one does for a livelihood."

The object of business is to make money, a lot of it if possible, and not only to keep on making it but to keep some that it makes. As nearly as I can understand, the outstanding difference between your idea of a profession and a business is that you don't want the pro-

fessional man to make much money or you want him to make it with a sneer or to make it secretly, while the business makes it openly and honestly.

The adventures and conquests which men have made in behalf of the professions—and they have been many and some have been noble—are hardly more numerous and perhaps not more important than other men have made in behalf of business and for profit. Explorers, adventurers, voyagers, engineers, paving the way for rail and steamship and aerial transportation; linemen for telephone and telegraph companies, often heroic in their devotion to duty, all are bringing the world of material things to do our bidding. You and I and our neighbors are better housed, better clothed, better protected and better served than any race of people has ever been in the past. From the time when our first human ancestor had his only home under an overhanging rock, perhaps millions of years ago, until now no one has ever had so many material blessings as are available to even a moderately successful American. Cræsus, Cæsar, Queen Elizabeth and Napoleon could have been put up better in any up-to-date American hotel than they ever were in all their grandeur.

#### SOME THINGS BUSINESS MAKES POSSIBLE

We may be better fed if we are intelligent enough. Near where I am writing are oranges from Florida and California, grapes from Spain, peaches from Delaware and apples from upper New York. We might take wise and pleasant exercise if we didn't have so many automobiles and be pleasantly

rested if we had not deliberately made ourselves part of a business- and pleasure-mad world.

Business crowds the professions hard in service for health and life. Within arm's reach of my desk is a telephone by which any one of a great list of specialists may be summoned. He will come swiftly in an automobile instead of slowly by a horse over rough roads, as in my boyhood days. If necessary, an ambulance will carry me at top speed over smooth roads to a hospital. Electricity will give better than daylight illumination on the operating room table, and great sterilizers will insure asepsis. Business provided the telephone, the automobile, the ambulance, the smooth roads, the operating-room illumination, and business men probably gave the money to build the hospital.

Business has its limitations and its shysters. There may be even more shysters in business than there are quacks and incompetents in the professions. But it has also its overwhelming percentage of firms and individuals which are honorable, hard-working and not unduly selfish, because an unduly selfish purpose in business defeats itself.

#### WHOM MAY I TRUST?

Let me bring this matter of service and integrity in business home to you with a jolt—the hardest jolt I know how to hand you. Thirty years of continuous association with dentists and dental dealers convinced me that on the average my interests would be safer in the hands of any of many reputable dealers than my health would be in the *average* dental office. If I knew no more about a dental office than the

average patient knows about dentistry but desired to spend \$10,000 in equipping an office, I could leave my interests entirely in the hands of any of many dental dealers and be sure of

the best possible service. But I'm extremely careful whom I let fill a tooth, and several times that careful as to whose advice or service I take on removable bridges.

(To be continued)



[DISCRIMINATION NECESSARY]

*Particular emphasis is to be placed on the fact that oral diagnosis should include a consideration of the type of restoration that best suits the need of the individual patient; for many a mouth, restored to a state of health, has been utterly ruined by poorly constructed and unwisely selected restorations. It is, therefore, evident that the responsibility of the dentist cannot cease until the mouth, freed of its sepsis, is restored in such a manner that oral health will continue.*

—EDWARDS.

## PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

*Editor, Practical Hints:*

Please advise me when and for what purpose Talbot's iodo-glycerol is used.

S. J. M.

ANSWER.—Talbot's iodo-glycerol is used as a counter-irritant in pericemental disturbances and in diseased conditions of the mucous membrane of the mouth accompanying pyorrhea.

*Editor, Practical Hints:*

The upper central incisor of a patient, female, aged about 38, is becoming loose. It projects considerably toward the labial and is considerably elongated, showing that it has moved from its socket. There are no signs of pyorrhea, and the tooth is free from deposits.

The patient says that the tooth commenced to become loose about a year ago. What do you suppose can be the cause? What can be done to save the tooth?

H. S.

ANSWER.—The first thing to do is to take an x-ray of the area and see exactly the condition of the alveolar process. If the tooth is being supported

by less than one-third the normal amount of bone, the prognosis is doubtful.

Secondly, the tooth should be carefully checked for traumatic occlusion, not only in central occlusion but also during the various excursions of the jaw. The tooth should be relieved from all contact, and if the neighboring teeth are suitable, a splint might be used with good results.

*Editor, Practical Hints:*

Please let me know how a dentist can best keep up with the new steps in dentistry. I do not mean a college post-graduate course.

What books should he buy? Is it best done in study clubs? I have been in practice eleven years, but have read but little. How may I proceed?

W. J. B.

ANSWER.—The first thing a man in your position should do is to join his local, state and national societies and attend all the meetings and clinics. He should subscribe to a number of dental magazines, since many new methods and technics appear in them long before



they are published in book form. He should become acquainted with his fellow-practitioners and feel that they are ready and willing to help him in his difficulties. Study clubs and clinic clubs are valuable aids.

he is not a mouth-breather would have to be confirmed before it was accepted. He might go to sleep with his jaws closed, but after that they might very easily relax. It would be best to go very slowly in the matter.

*Editor, Practical Hints:*

I have a patient, 60 years of age, who is troubled with a dry mouth during the night and has to take a sip of water several times during the night when he awakes. All his upper teeth are crowned from bicuspid to bicuspid, and there are bridges to his molars. His lowers are also crowned from cuspid to cuspid with amalgam fillings in molars and bicuspids. His physician has given him a thorough examination and attributes his trouble to too much gold in the mouth. He is not a mouth-breather, but clamps his jaws during his sleep. Could it be possible that there is an electric current caused from the gold crowns and amalgam fillings?

These crowns and bridges have been in his mouth for years, and I do not like to take his physician's advice and extract them, as he has no trouble with them and is perfectly healthy otherwise.

J. B. C.

ANSWER.—Of course we know that the flow of saliva is greatly diminished during the night, but it hardly seems possible that this extreme dryness is due to the fillings. Sometimes an electrolytic action is set up between fillings of two different metals, but moisture is necessary for this action to take place. We doubt very much if it would cause dryness.

Any assertion from the patient that

*Editor, Practical Hints:*

There has been a problem confronting me for a long time since I have been practicing dentistry, and that has been in trying to find a reliable root-canal filling material.

What material, in your opinion, seems to give the most satisfaction? Kindly give me some information about what to use.

I think this is a very important subject. Even after we have thoroughly treated the canals and they are ready to be filled, what is the safest and most reliable root-canal filling?

A. F. B.

ANSWER.—With reservations it can be said that there is no reliable root-canal filling material. The success depends upon the skill and conscientiousness of the operator. Gutta-percha points and chlora-percha are probably the most widely used materials, and a high percentage of success has been attained by their use.

However, we would strongly recommend the careful reading of two articles by Stewart in *The Journal of the American Dental Association*, March and October, 1930. A third article by the same author appeared in the November issue of *THE DENTAL DIGEST*. Stewart's technic may appear radical, but it is based on sound reasoning and successful completion of hundreds of cases. It is a technic that is by no means

easy, but is worthy of careful consideration.

*Editor, Practical Hints:*

I should very much appreciate an opinion on the following case:

About three months ago my daughter, then two years old, fell while drinking water from an infant's bottle, struck the floor face downward with the bottle in her mouth and broke off the mesio-incisal angle of her left maxillary incisor. The pulp was not exposed, and she did not complain of any pain in the tooth afterward.

Today, while helping her brush her teeth, I noticed that at the apex of this tooth the gum tissue was highly inflamed and a soft swelling was present. I believe the tooth has abscessed as a result of a dead pulp due to traumatic shock.

What would you advise? If I must extract, how can I retain the space in a child so young? She is in perfect health and weighs 39 pounds.

M. M. G.

ANSWER.—From the symptoms you describe it is probable that the pulp is putrescent. It should be opened up and an attempt made to save the tooth. If this is impossible and extraction is necessary, the space may be maintained by banding the tooth on each side and connecting them by a stiff wire. Since she is a member of your family, it will be easy for you to keep a close watch as the case develops.

*Editor, Practical Hints:*

I have a case about which I should appreciate some information—a full

upper denture that appears to leak and then drop after being worn a few hours. The patient has no trouble in eating, and the denture is not loose after eating. The patient can wash the denture and rinse her mouth, and it stays very tight again for a few hours. It is really difficult to remove when first inserted. This is the second attempt, as the first denture had a definite leak and remained loose at all times. The occlusion seems all right.

The patient leaves the denture in at night, and in the morning it is tight when she awakes. Talking affects it somewhat, but it will loosen even when she is alone working in the house.

W. F. R.

ANSWER.—The fact that the patient can wear the denture all night and find it tight in the morning would seem to indicate that the adaptation is satisfactory. There is a possibility that she has formed a habit of playing with the denture with her tongue or has a muscle movement of which she is totally unconscious. This might break the seal and cause the denture to drop.

It might be a good plan to recheck the occlusion, not only during central occlusion but also during lateral excursions of the jaw.

*Editor, Practical Hints:*

I have read of and tried many treatments for dry socket, but I have yet to find an ideal treatment.

I shall be very grateful if you will let me know what you consider the best treatment for dry socket. Also, let me know if there is a preventive for dry socket.

W. J. C.

ANSWER.—Dry socket is a very difficult condition to handle, and even the best treatment leaves a great deal to be desired by both the patient and the operator.

It is a low-grade infection and is generally characterized by the absence of a normal blood-clot, though even a normal blood-clot may become infected and give the usual symptoms.

To avoid or, rather, to try to avoid dry socket, trauma should be kept at a minimum, and the least amount possible of suprarenin should be used. It is also advisable to wash the mouth with a 5% to 10% solution of sodium perborate; co-existing oral infection should be controlled and the adjoining teeth scaled. The operative area should be protected from saliva until a clot has formed, and having the patient bite on a gauze pack for ten minutes will prevent interference with coagulation.

When the dry socket does occur, anodynes are of little value unless given in large enough doses to induce sleep. Pyorrhea, Vincent's infection, abscesses, etc., should be treated when present, and all irritants should be removed. The socket should be cleaned of decomposing material and irrigated with a hot solution of sodium perborate, chloramin-T or potassium permanganate. Retained granulomata, spicules, sharp process and infected granulation tissue should be removed by curettage. Great care must be taken not to spread the infection. Exposed nerve-endings should be cauterized by silver nitrate 10%, trichloroacetic acid or phenol.

The topical application of camphorphenique or thymol iodid in vaseline is of help, but the socket should not be packed. The use of the ultra-violet ray is claimed to be of value by some.

In spite of all you can do, the patient is almost certain to experience considerable discomfort.

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*Editor, Practical Hints:*

I shall be very grateful to you if you will pay attention, for a while, to the following case:

A man came to my office with his 16-year-old son. The man complained that when his son is asleep, he makes a noise as if he were eating something and his teeth crackle. The boy is very healthy; all his teeth are erupted and in good condition. I advised a feces examination, and it did not show any kind of parasites. I learned that some of his relatives suffer from the same disease.

Will you kindly help me out on this case?

J. R. P.

ANSWER.—This is probably a case of grinding the teeth at night and in the majority of cases is due to a disturbance in the nervous system. While in the last analysis he should go under the care of a physician, it would be well if you carefully examined his mouth for Vincent's disease and unerupted and impacted third molars. The presence of the latter might be causing a reflex action.

## DENTAL SECRETARIES and ASSISTANTS

### Secretaries' Questionnaire

All communications should be addressed to Elsie Pierce, care of  
THE DENTAL DIGEST, 220 West 42d Street, New York, N. Y.

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NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT-CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR GREATER EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE. YOU MAY HELP MANY GIRLS WHO ARE BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. PERHAPS YOU NEED HELP NOW. WRITE TO ELSIE PIERCE—SHE WILL HELP YOU.

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*Dear Miss Pierce:*

Please let me know if there is a society for dental assistants in Schenectady, or in any other city in the Capital District.

I have been employed as a dental assistant and secretary for nine months and have found your department in THE DENTAL DIGEST very helpful.

H. K., Schenectady, N. Y.

ANSWER.—Yes, there is a very fine society for dental assistants in Schenectady. Write to Mrs. C. F. Baldwin, Secretary, 619 Union Street, for such information as you desire about the organization.

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*Dear Miss Pierce:*

Answering E. M. D., Staten Island, the Richmond County Dental Assistants Study Club holds its meetings on the second Thursday of every month from October to April, inclusive, at the Staten Island Hospital. For further in-

formation, write to Lucille Rudloff, 52 Cebra Avenue, Tompkinsville, S. I., N. Y., c/o Dr. C. L. Seesselberg.

LUCILLE RUDLOFF, *Secretary.*

We appreciate this information, and no doubt our readers will be glad to know of this association.

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*Dear Miss Pierce:*

I have had three and a half years of high school work, and at present I am a dental assistant. I should appreciate knowing of any course leading to furtherance in the dental hygiene field.

R. S., N. Y.

ANSWER.—Apply to the School of Hygiene, Columbia University, 168th Street and Broadway, New York, where courses are given for dental hygienists.

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*Dear Miss Pierce:*

I have just graduated from high school with a classical diploma and have become interested in the work of the dental assistant. I have had no dental

experience nor commercial study knowledge. Can you suggest some course or courses which might help me?

B. E. C., Gloversville, N. Y.

ANSWER.—We suggest that you secure a position in a dental office for the practical experience, and that you supplement this with an evening secretarial course, which will aid you in that phase of the office procedure. Join the dental assistants' society in the city nearest to you and take all their class-work. Attend their meetings and clinics, read all the literature you can secure that will give you information on the duties of dental assistants and office procedure, secure the back numbers of THE DENTAL DIGEST as far as you can and study the questions and answers in the questionnaire. The nearest society to you is located in Schenectady (see the reply to the first question in this issue).

*Dear Miss Pierce:*

I am very anxious to know whether there are any societies for dental assistants in Hartford, Conn.

I have been an assistant for six months and am very fond of the work. I have been trying to secure as much knowledge as possible about the work an assistant should do from the several magazines the Doctor receives. I also have sent for the booklets issued by the dental supply houses, but I feel that I could put in some time with a club or society and learn much to my advantage. If you will cooperate with me in this matter, I shall be greatly obliged.

VERY ANXIOUS, Hartford.

ANSWER.—We know of no society

in Hartford, but there is a very fine group in Springfield, Mass., with which we feel certain you could affiliate. The president is Miss Rachel Clark, 263 Union Street, and we suggest that you get in touch with her.

The only society in Connecticut is in Fairfield County, taking in Stamford and surrounding towns. We believe this would not be so convenient for you. However, if you desire to get in touch with them, the secretary is Miss Otilie Friend, Bishop Building, Norwalk, Conn.

We congratulate you on your ambition for greater knowledge of your work, and if we can aid you further, we shall be glad to do so.

*Dear Miss Pierce:*

Referring to the letter in the November Questionnaire signed "A New England Dental Assistant," I should like to say that I myself have worked as a dental assistant for two years although I am a dental hygienist now, so I know just how this person feels. Nevertheless it is one of the most difficult undertakings to break a girl into an office if she knows nothing about its work.

I think this young woman should not complain for at least three or four months, or until she acquires more experience. Then she should explain the situation to the dentist, and if he is the right sort, I am sure he will be only too glad to raise her salary. If he doesn't, then I should look for a new position, feeling grateful to him for having broken me in. I think a dentist would rather raise the salary than start breaking in a new girl.

R. M., D. H.



We thank R. M. for her opinion on this letter's query. It will no doubt interest our readers as well.

*Dear Miss Pierce:*

Since the publication of the November issue I have received letters from various states regarding membership in the dental assistants' association, but nothing as yet from L. L., of Orange, N. J. The idea occurs to me that if you would publish the names of the secretaries of the various organizations, your readers interested in joining a society in their locality would be able to get in touch with them.

MABEL CLARK, *Cor. Secy.*,  
Dental Assistants Association of  
Northern New Jersey.

We appreciate this suggestion, and herewith is a list of the secretaries of the various societies as we have them at this date. We shall appreciate any additional information that our readers may have. A letter to the secretary of a state society will bring you the information of the local secretaries in the state.

#### ALABAMA

Alabama Dental Assistants Association  
Mary Green, *Secy.*  
320 Clinton St.  
Montgomery, Ala.

#### CALIFORNIA

Dental Assistants Association of  
Southern California  
Gabrielle von Hungen, *Secy.*  
926 Pacific Electric Bldg.  
Los Angeles, Calif.

#### COLORADO

Colorado Dental Assistants Association

Lucille Griffith, *Secy.*  
411 Empire Bldg.  
Denver, Colo.

#### DISTRICT OF COLUMBIA

District of Columbia Dental Assistants  
Society

Charlotte Hardwick, *Secy.*  
702 Columbia Medical Bldg.  
Washington, D. C.

#### GEORGIA

Georgia State Dental Assistants  
Association  
Phoebe Hayes, *Secy.*  
619 Grant Bldg.  
Atlanta, Ga.

#### ILLINOIS

Chicago Dental Assistants Association  
Lillian Goldstein, *Secy.*  
55 East Washington St.  
Chicago, Ill.

Bi-State Dental Assistants Association  
Elsie Molander, *Secy.*  
616 Ashton Bldg.  
Rockford, Ill.

#### INDIANA

Indiana State Association of Dental  
Assistants  
Esther Brown, *Secy.*  
507 East 34th St.  
Indianapolis, Ind.

#### LOUISIANA

Louisiana Dental Assistants  
Association  
Laura Guillot, *Secy.*  
417 Medical Arts Bldg.  
Shreveport, La.

#### MASSACHUSETTS

Valley District Dental Assistants  
Association  
Ruth Tobin, *Secy.*  
293 Bridge St.  
Springfield, Mass.

MICHIGAN

Detroit Dental Assistants Society  
Abonai Sobkowaik, *Secy.*  
5466 Chene St.  
Detroit, Mich.  
Genesee County Dental Assistants  
Association  
N. Ethel Scott, *Secy.*  
206 Dryden Bldg.  
Flint, Mich.

MINNESOTA

Minnesota Dental Hygienists  
and Assistants Association  
Margaret Farwell, *Secy.*  
900 Yeates Bldg.  
Minneapolis, Minn.

MISSOURI

Dental Assistants Society  
of Kansas City  
Grace Wegeng, *Secy.*  
220 Argyle Bldg.  
Kansas City, Mo.  
Dental Assistants Educational and Effi-  
ciency Society of St. Louis  
Lydia Ameling, *Secy.*  
6229 Delmar Ave.  
St. Louis, Mo.

NEBRASKA

Nebraska Dental Assistants  
Association  
Lillian Burcham, *Secy.*  
1016 Stuart Bldg.  
Lincoln, Neb.

NEW JERSEY

Monmouth County Dental Assistants  
Association  
Margaret S. Hill, *Secy.*  
2 Third Ave.  
Long Branch, N. J.  
Dental Assistants Association  
of Northern New Jersey  
Mabel C. Clark, *Secy.*

507 Orange St.  
Newark, N. J.

NEW YORK

Dental Assistants Association  
of the State of New York  
Zoa H. Dickhaut, *Secy.*  
344 Woolworth Bldg.  
Watertown, N. Y.

NORTH DAKOTA

North Dakota State Dental Nurses  
and Assistants Association  
Esther McGlynn, *Secy.*  
c/o Dr. H. H. Ewy  
Fargo, N. D.

OHIO

Summit County Dental Assistants  
Association  
Helen Derwort, *Secy.*  
732 Second National Bank Bldg.  
Akron, Ohio  
Cincinnati Dental Assistants  
Association  
Lillian Meiman, *Secy.*  
647 Doctors Bldg.  
Cincinnati, Ohio  
Cleveland Dental Assistants  
Association  
Helen M. Strange, *Secy.*  
569 East 110th St.  
Cleveland, Ohio  
Dayton Dental Assistants Association  
Lucile Flick, *Secy.*  
960 Fidelity Bldg.  
Dayton, Ohio  
Toledo Dental Assistants Association  
Helen Fisher, *Secy.*  
1141 Sylvania Ave.  
Toledo, Ohio

OKLAHOMA

Oklahoma State Dental Assistants  
Association  
Retha Rogers, *Secy.*

808 Medical Arts Bldg.  
Tulsa, Okla.

PENNSYLVANIA

Lehigh Valley Dental Assistants  
Association

Helen L. Coyle, *Secy.*  
25 South Tenth St.  
Allentown, Pa.

Erie County Dental Assistants  
Association

Margaret Hayes, *Secy.*  
813 Sassafras St.  
Erie, Pa.

Luzerne County Dental Assistants  
Association

Marguerite Brennan, *Pres.*  
299 Wyoming Ave.  
Kingston, Pa.

Philadelphia Association of Dental  
Nurses

Naomi R. Fetter, *Secy.*  
1115 Medical Arts Bldg.  
Philadelphia, Pa.

Pittsburgh Dental Assistants  
Association

Helen Mandeville, *Secy.*  
301 Shields Bldg.  
Pittsburgh, Pa.

TENNESSEE

Dental Assistants Association  
of Tennessee

Mrs. L. Andrews, *Pres.*  
552 Doctors Bldg.  
Nashville, Tenn.

WASHINGTON

Seattle District Dental Assistants  
Association

Harriett Lill, *Pres.*  
423 Denny Way  
Seattle, Wash.

Tacoma Dental Assistants  
Association

Edith Weinhardt, *Pres.*  
1117 North Seventh St.  
Tacoma, Wash.

All the aforementioned societies are  
affiliated with the American Dental  
Assistants Association.

## Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

A regular meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, Inc., was held on November 11, 1930, when an excellent program was presented to a large audience of members and guests. Dr. Oscar J. Chase, President of the First District Dental Society of New York, was the guest of honor; Dr. Clinton Boone spoke on *Business Procedure for the Dental Assistant*, and Ethel M. Pollack, a member of the

Society, presented a table clinic on secretarial assistance.

Classes on inlay technic and gold castings and on sterilization are now in progress, sessions being held one evening each week. Instruction in other subjects valuable to the assistant is being arranged. The study groups are open to members of the Society only, and further details may be obtained from the chairman, Mary A. O'Connor, c/o Dr. E. Reiner, Cliffside, N. J.

The Clinic Club held its regular meeting on November 17, 1930. Sterilization was the topic of discussion, which proved to be very interesting and instructive. The Club, composed of members of the Educational and Efficiency Society, meets regularly each third Monday evening of the month, September to May, inclusive, to study and analyze the various phases of the dental assistant's work. The members also arrange clinics for presentation before dental societies and dental assistants' societies, both local and national. Demonstrations are being prepared at the invitation of the Westchester County Dental Society and the Kings County Dental Society for February on sterilization and the duties of the assistant in preparation for root-canal work. The next regular meeting of the Club will take place on Monday, January 19, 1931, at 7:30 p. m., at the office of Dr. Henry Fowler, 174 West 96th Street, New York, when the subject will be *Chair Assistance and the Preparation of Surgical Accessories*.

The Library has received additional books on nursing, bacteriology, materia medica and physiology. These are avail-

able to members, along with articles on dental topics pertinent to the duties of the dental assistant and a collection of practical suggestions for improved office management. The Librarian, Sylvia Messenger, may be addressed: c/o Dr. M. W. Lubitz, 516 Fifth Avenue, New York.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive. Dental assistants employed in ethical dental offices are welcome; their interest and cooperation are solicited. The Society does not conduct a registry nor is it connected with any commercial enterprise. It is the aim of the organization to advance the standard of education for the dental assistant and to afford her an opportunity for study and improvement in the performance of her duties.

The next meeting of the Educational and Efficiency Society will be held at 7:45 p. m. on Tuesday, January 13, 1931, at the Hotel Pennsylvania, 7th Avenue and 33rd Street, New York. A cordial invitation to be present is extended to the members of the dental profession and to their assistants.

## Montreal Dental Assistants Association

The Montreal Dental Assistants Association held a business meeting at the office of Dr. F. W. Saunders, in the Medical Dental Building, on November 18, 1930, with Mrs. M. McKennan presiding.

Through the courtesy of Dr. A. L.

Walsh, Dean of the McGill Dental Faculty, the program for the season has been arranged, and the first lecture was given on December 8th on the subject, *Oral Surgery*, with practical demonstration.

## Richmond Dental Assistants Society

The Richmond Dental Assistants Society held a regular meeting at the Methodist Publishing Building, 417 East Grace Street, Richmond, Va., on Wednesday evening, November 5, 1930.

Harry Lyons, D.D.S., Associate Professor of Oral Pathology and Therapeutics at the Medical College of Vir-

ginia, gave an instructive illustrated lecture on *Some Observations of Dental Diseases*.

At the first meeting of the season, on October 6, 1930, G. A. C. Jennings, D.D.S., Instructor in Clinical Pedodontia at the Medical College of Virginia, gave an interesting talk on *Child Psychology in Dentistry*.

## Relation of Diet to Mouth Health\*

By GLADYS TEICH, St. Paul, Minn.

The subject of diet in relation to mouth health has been a topic that has been receiving a great amount of consideration during the past ten years. Eating has been one of the important occupations since the beginning of human existence, and recent years have brought a vast amount of research on this subject. The dentist and the nutritionist have been brought together to discuss the relationship between good nutrition and sound teeth. However, many phases of this subject are still in the controversial stage. Yet the greatest amount of recent research done in this field seems to indicate that the building of strong bodies and the formation of strong teeth go hand in hand, and that the condition of each during the period of growth is affected by the state of nutrition.

We, as dental assistants and future

homemakers, should, I believe, be vitally interested in this subject of diet and its importance to mouth health as well as to health in general. The most important investigators who have advanced theories are J. Sim Wallace, Mrs. May Mellanby and Percy R. Howe. Our interest in their investigations should be centered on gaining practical knowledge which will be helpful to us in our present work. As assistants, occasions arise in our work when we may be asked by patients regarding this subject of diet. Also, this knowledge of diet is vastly important to our own health. Good mouth health is one of the biggest assets to success in our occupation.

Faulty nutrition is one of the chief causes of disease of the teeth and their supporting tissues. To quote Mrs. Mellanby, of Sheffield, England: "The subject of diet and its influence upon dental structure has been recognized as important. This recognition of its

\* Read before the American Dental Assistants Association at Denver, Colorado, July 22, 1930.



significance is largely due to investigations carried out during the past eleven years which indicate that there is a definite relation between dental structure and caries, and that the structure of the teeth can be controlled by diet."\*

Scientific men have shown in extensive investigations of the American dietary that it is often deficient in calcium, iron, phosphorus, iodine, vitamins and roughage. In many foods, such as cereal grains, root vegetables, potatoes and most fruits, these elements are found in the outer structures, which in modern milling of cereal grains and usually in the preparation of fruits and vegetables are removed, wasted or destroyed. If these elements are lacking, malnutrition occurs as well as diseases of the various parts of the body, including the two dental diseases, tooth decay and pyorrhea, and irregular teeth.

#### CALCIUM

The bones and the teeth contain 99% of the calcium of the body. If the calcium is not supplied in the food, nature removes it from the bones and, it is believed, from the teeth. Phosphorus, iron and certain vitamins are necessary in order that the body may use the calcium found in the food. Calcium is found largely in milk, cheese and leafy vegetables. Some fruits and vegetables contain it in large amounts. Although calcium is found in all natural foods, such as milk products, unmilled grain, leafy vegetables, fruits and even meats excepting the muscle meats, modern methods of refining and cooking often take away the calcium so that it is lost to our dietary. The

water in which vegetables are cooked contains calcium and other minerals necessary to human health. The importance of calcium in the body cannot be emphasized too strongly, as it is one of the great regulators of the body and the most abundant element of the teeth.

Phosphorus and Vitamins C and D must be present in sufficient quantities with calcium to build strong, sound teeth with which to resist disease.

Foods rich in calcium which should be a part of every proper diet are milk and milk products (except butter), egg yolks, green vegetables, legumes, whole cereals, molasses, nuts and oranges.

#### PHOSPHORUS

Phosphorus is an important element in maintaining the proper action of the blood. Phosphorus is essential for growth, for the production of bone and for the teeth. Without the proper amounts of calcium and phosphorus the health of the teeth and bones is affected. The foods essentially rich in phosphorus are milk, eggs, whole grains, legumes, meat and fish, green vegetables, potatoes, pears, peaches, pineapples, plums and prunes.

#### IRON AND IODINE

Iron and iodine are also necessary for the maintenance of health. The best sources of iron are furnished in vegetables, fruits, milk and eggs. The foods that contain iodine are sea fish and green vegetables.

#### THE VITAMINS

The newest addition to the group considered essential are the vitamins, of which the five most important are Vitamins A, B, C, D and E. They are

\* *PHYSIOLOGICAL REVIEWS*, Vol. VIII, No. 4: *The Influence of Diet on the Structure of Teeth*.

of unknown chemical composition and are of such importance to our good health that if any one of them is missing, maladies result that are known as deficiency diseases. The particular disease depends on the vitamin which is missing. The result of this deficiency is a loss of robust health and, in children, failure to grow.

Vitamin A is found in cream, butter, egg yolks, fresh green leaves, yellow corn, glandular organs such as kidneys, liver and sweetbreads, and in carrots, sweet potatoes, cheese, whole milk and cod-liver oil. This vitamin is necessary for the maintenance of good health and for immunity to certain infectious diseases.

Vitamin B is found in green leafy vegetables, tubers and root vegetables, whole cereal grains, milk, eggs, peas, dried beans and fruits. Vitamin B prevents a disease of the nerves which results in paralysis.

Vitamin C is found in fresh raw fruits, uncooked green leaves, carrots, yellow turnips, raw cabbage, tomatoes, cooked and uncooked, and celery. Raw milk contains a certain amount.

Cooking easily destroys Vitamin C except in tomatoes. For this reason fresh uncooked fruit and vegetables should be eaten each day.

Vitamin C is vital for the proper growth and development of bones and teeth. In the mouth, swollen blue gums and loosened teeth are the chief symptoms of scurvy, which is caused by a lack of Vitamin C. In infants' diet scurvy will show up in eight months if the diet is not supplemented by orange juice, tomato juice or other fresh fruit juices.

Vitamin D is found in cod-liver oil,

fish-liver oils, egg yolks and butter. The lack of this vitamin causes faulty bone and tooth calcification. A deficiency in Vitamin D results in a lowered resistance to common infections, such as colds and decayed teeth. The exposure of the body to direct sunshine produces the same effect as eating foods that contain this Vitamin D. We should use every opportunity to spread this idea of using sunshine for health's sake and should make use of every chance to practice this idea personally.

#### ROUGHAGE

Roughage is another essential in our diet, and foods that have this quality are whole grain cereals, fruits and vegetables. This roughage is very important, because it gives the teeth exercise, tends to keep them clean, massages the gums and is of benefit in aiding and improving elimination. The lack of exercise of the jaws makes the teeth most liable to disease. As the average American diet is composed of too soft foods, it is necessary that we choose foods that require longer mastication. The habit of bolting food is undoubtedly responsible for much of the constipation and other ailments, including dental disease. Decay of the teeth is now believed to be, in part at least, a result of diet-deficiency. Considering that dental decay is often a deficiency disease that is occurring in the whole body, one sees why dentist and physician are turning their attention to dietary reform as a means of prevention of disease.

In closing, I should like to stress the idea that many authorities in dentistry and nutrition believe and have evidence to prove that correct foods and thor-

ough mastication can improve the teeth in adults. Of the correct foods the daily amount of milk is the most important, as well as the daily use of raw fruits and vegetables and also the use of whole grain products in both bread and cereal.

part in preventive dentistry by keeping abreast with these new ideas in regard to diet and by using the knowledge thus gained in a practical way for our own benefit and for the benefit of all others to whom this knowledge would be helpful.

As dental assistants we can do our

166 Edmond Street



## EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

A Happy and Prosperous New Year to everybody.

Blessed is that customer who at this time is weighed by merchants and found wanting—wanting more goods.

Anyway, a dentist is more honest than a good many parents. He never says: "This is going to hurt me more than it hurts you."

(Lady Visitor)—Why have you come to prison?

(Prisoner)—Competition brought me here.

(Lady)—Competition?

(Prisoner)—Yes, I made the same kind of banknotes as the Government.

One day, as I chanced to pass,

A beaver was damming a river.  
And a man who had run out of gas,  
Was doing the same to his flivver.

### SHE KNEW HOW

(He—with hands over her eyes)—If you can't guess who it is in three guesses, I'm going to kiss you.

(She)—Jack Frost; Davy Jones; Santa Claus.

Old Jabo was known as a bit of a wisecracker. One day while conversing with some friends the talk turned to burials, cremations, etc. Jabo was asked which he would prefer, burial or cremation when he died? "Well," he said, "I really don't know, because it's cemeterial to me."

A Scotchman and an Englishman were lunching together in a London restaurant. When finished, the waiter asked "Who pays the bill?" "I will," Scotty was heard to say. The next morning all the newspapers had an account of the brutal murder of a British ventriloquist.

"Nothing" has been defined as a footless stocking without a leg.

A sign over a butcher's shop in London reads: "If you are not being butchered properly, try us."

A man can now talk of himself around the world, but when he barks his shin on a chair he seldom troubles to hunt up a microphone.

### ROUGH ON THE DOCTORS

From the statistical report that the apple crop this year will reach fifteen billions, some people may believe that it is to be a hard winter for the doctors.

This country is quite right in barring immigrants who might become public charges, it being able to produce very satisfactory public charges of its own.

Two ladies sat, during a concert, discussing their ailments. The first said: "I've awful headaches, and pains in my lungs, and the doctor says I've a weak heart." The second replied, "My trouble is lower down. My knees are painful, my stomach troubles me, my liver makes me miserable."

An old gentleman sitting in front turned round and said to them, "Excuse me, ladies, I've come to a concert, not an organ recital!"

### A FAIR WARNING

An historian states that a duke was poisoned through eating acid fruit from solid gold dishes. We warn our readers to be careful about this in future.

(Jimmy)—Say, Jack, how do they milk a cow?

(Jack)—I dunno, but it's a good trick if you can do it.

(Jimmy)—Well, I asked grandpa to show me, but I didn't ketch on, so I asked him to put the milk back and do it over again, but he wouldn't do it. Then he give me a kick in the pants and told me to go home.

### BELIEVE IT OR NOT

Shirts have buttons,  
Trees have leaves,  
Cats have whiskers,  
Coats have sleeves.

Birds have feathers,  
Dolls have curls,  
Shoes have tongues,  
And so have girls.

(Mike)—Say, I was fool enough to tell that dentist you sent me to him.

(Ike)—What difference did that make?

(Mike)—Well, he made me pay cash in advance.

Ten years ago the average man established contact with the world's great personages only through newspaper pictures. Today he can lie in a bathtub and be addressed by George Bernard Shaw, H. G. Wells and the Prince of Wales.

Now, the old year's tale is spun.

Turn the pages one by one—

Close the book, the story's done!

## FUTURE EVENTS

**THE KINGS COUNTY DENTAL SOCIETY** will hold its regular meeting at the Building of the Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn, N. Y., January 8, 1931.

Leo Winter, D.D.S., of New York, Professor of Oral Surgery, New York University College of Dentistry, will speak on *Anesthesia and Exodontia*.

The discussion will be opened by Herman Ausubel, D.D.S., of Brooklyn.

Preceding the meeting, at 7:30 p. m., the following will give clinics:

J. J. Alper, D.D.S.: *Exodontia*.

M. Nevin, D.D.S.: *Local Anesthesia*.

H. Seldin, D.D.S.: *General Anesthesia*.

Dr. Winter will also give a practical clinic on patients on Friday morning, January 9, 1931, between eleven and one, at the clinic quarters, 62 Hanson Place, Brooklyn.

J. L. Felsenfeld, *President*,

HERMAN AUSUBEL, *Chairman*,

*Educational Committee*,

1 DeKalb Ave., Brooklyn, N. Y.

**THE EASTERN DENTAL SOCIETY OF THE CITY OF NEW YORK** will hold its next regular meeting at the Allied Dental Council Auditorium, 425 Lafayette Street, New York, on January 8, 1931.

Arthur H. Merritt of New York will give a lecture on *The Etiology and Treatment of Periodontoclasia*.

Louis Lerner of New York will lead the Round Table Topic Discussion.

A series of most instructive clinics on the newer phases of periodontia will be given by the following clinicians:

M. J. Goldin

A. H. Goodman

A. Kuntz

S. Charles Miller

Sidney Sorrin

Mrs. Ziegen, assisting I. Hirschfeld

The Dental Hygienists Association

LOUIS I. ABELSON,

*Chairman of Executive Committee*,

310 West 72nd St., New York, N. Y.

**THE SOUTHERN SOCIETY OF ORTHODONTISTS** will hold its Eleventh Annual Meeting at the New Fleetwood Hotel, Miami Beach, Fla., January 13-15, 1931.

Among the essayists will be Alfred P. Rogers, Boston, Mass.; A. LeRoy Johnson, New York, N. Y.; Herbert A. Pullen, Buffalo, N. Y.; Frank

M. Casto, Cleveland, Ohio, and W. W. McKibben, Miami, Fla.

An invitation to attend this meeting is extended to all members of the dental and medical professions.

CARLTON B. MOTT, *President*,

Flatiron Bldg., Asheville, N. C.

OREN A. OLIVER, *Sec'y-Treas.*,

Medical Arts Bldg., Nashville, Tenn.

**THE NORTH DAKOTA BOARD OF DENTAL EXAMINERS** will hold its next meeting at the Gardner Hotel, Fargo, N. D., January 13-16, 1931.

All applications must be in the hands of the secretary by January 3rd.

GILBERT MOSKAU, *Secretary*,

Grand Forks, N. D.

**THE CLASS OF 1918, NEW YORK UNIVERSITY COLLEGE OF DENTISTRY**, will hold its first reunion dinner on Friday, January 16, 1931, at Hotel Lincoln, Eighth Avenue and 45th Street, New York. All members of the class are invited. If an application blank has not reached you, kindly get in touch with

LOUIS SCHORR, *Secretary*,

171 West 79th St., New York, N. Y.

**THE WESTCHESTER DENTAL SOCIETY** will hold its Fourth Scientific Session of the season at the Community Center, 122 South Broadway, Yonkers, N. Y., on Tuesday evening, January 20, 1931.

Benjamin Kornfeld, of New York, will lecture on *Silver Alloy Amalgam as a Restoration for Lost Tooth Structure in Posterior Teeth*. He will give a clinic following his lecture.

Samuel Slaff, of Mount Vernon, will give a table clinic on *The Packing of Enamel, and on Various Attachments for Bridgework*.

Mr. Voelker of the L. D. Caulk Dental Depot will demonstrate the manipulation of synthetics and cements.

Also, there will be a clinic for dental assistants on *How to Manage a Dental Office Successfully*. During October W. S. Heermans, of New York, conducted a study course on *Denture Construction*.

During November Max Pletman, of Yonkers, conducted a class in *Inlay and Pin-Ledge Construction*.

In December I. Linder, of Yonkers, led a study class in *Conductive and Infiltration Anesthesia*.



THE DELAWARE STATE BOARD OF DENTAL EXAMINERS will hold an examination for both dentists and oral hygienists in the Municipal Building, 10th and King Streets, Wilmington, Del., January 21-22, 1931, from 9 a. m. to 5 p. m.

All applications must be filed in the office of the secretary at least ten days before the date set for the examination. Full information, application blanks, etc., may be secured from W. S. P. COMBS, Secretary, Middletown, Del.

THE BALTIMORE CITY DENTAL SOCIETY will hold its Sixth Annual Mid-Winter Clinic at the Lord Baltimore Hotel, Baltimore, Md., January 30-31, 1931.

The clinicians will be as follows:  
Ira C. Brownlie, Denver, Colo., *X-Ray Interpretation*.

Theodor Blum, New York, *Oral Surgery*.  
F. Blaine Rhobotham, Chicago, Ill., *Children's Dentistry*.

Karl W. Knapp, New York, *A Simplified Wax Expansion Technic for Dental Castings*.

Members of the American Dental Association are invited to attend the clinic. The membership is strictly limited to two hundred, and applications will be accepted in the order in which they are received.

There will be a nominal fee. For further information, communicate with Thomas J. Bland, Jr., D.D.S., Chairman, Membership Committee, 606 Medical Arts Bldg., Baltimore, Md.

F. NOEL SMITH, Chairman,  
829 Park Ave., Baltimore, Md.

THE CHICAGO DENTAL SOCIETY will hold its Sixty-seventh Annual Mid-Winter Meeting at the Stevens Hotel, Chicago, Ill., February 2-5, 1931.

Because of the great demand of previous years, the transactions of this meeting will be bound and made available to those who wish them.

The Program Committee, Stanley D. Tylman, Chairman, will present one of the best programs in the history of the Society.

The manufacturers' and dealers' exhibits will be in the exhibition hall of the hotel and will, as always, be a center of attraction. C. Davidson is chairman of this committee.

The Society extends a cordial invitation to attend to all members of the American Dental Association.

HARRIS W. McCLAIN, President,  
HOWARD C. MILLER, Secretary,  
55 East Washington Street, Chicago, Ill.

THE EASTERN DENTAL SOCIETY OF THE CITY OF NEW YORK will hold its regular meeting at the Allied Dental Council

Auditorium, 425 Lafayette St., New York, on February 5, 1931.

David Slutskin will lecture on *Fixed Bridge-work*.

Simon Shapiro will lead the Round Table Topic Discussion.

Clinics demonstrating the newer conceptions of bridgework will be given by the following clinicians:

Finn J. Bronner	Jacob Schaffer
Aaron Brown	Walter Schilke
S. Charles Gardner	Harry Seides
Charles Goodman	J. Selverstone
J. F. Lief	Benjamin Shapiro
William J. Meier	J. Shapiro
Frederick W. Pratt	Jos. A. Viverito
M. B. Rubin	S. Waterman

M. H. Zeisler

LOUIS I. ABELSON,  
Chairman of Executive Committee,  
310 West 72nd St., New York, N. Y.

THE DALLAS MID-WINTER DENTAL CLINIC will be held in Dallas, Texas, February 16-18, 1931.

H. G. Morton of Milwaukee, Wis., will be the clinician in crown- and bridgework, and Arthur C. Engle of St. Louis, Mo., the clinician in surgery. The clinician for prosthetics is yet to be selected.

THE KINGS COUNTY DENTAL SOCIETY will hold its Second Mid-Year Meeting for Progressive Dentistry at the new St. George Hotel, Brooklyn, N. Y., February 25-27, 1931.

Elaborate educational sessions have been arranged for operative clinics, table demonstrations, lectures, topic discussions, etc. The entire afternoon and evening of Friday, February 27th, are allotted to exhibitors for special demonstrations or clinics.

Admission will be by registration, and registration blanks will soon be in the mail. No fee will be required.

There will be a banquet on Saturday evening, February 28th.

Watch these columns for further details.

CHARLES OGUR, Chairman.

THE CENTRAL PENNSYLVANIA DENTAL SOCIETY will hold its Annual Meeting at the Fort Stanwix Hotel, Johnstown, Pa., March 2-4, 1931.

The committee is preparing a program which will be both interesting and of scientific value.

Formal announcements will be mailed the latter part of November to the dental manufacturers.

RALPH M. WOLFORD, President,  
600 Johnstown Trust Bldg., Johnstown, Pa.

THE MINNESOTA STATE DENTAL ASSOCIATION will hold its Forty-Eighth

Annual Meeting in the Auditorium, Minneapolis, Minn., March 4-6, 1931.

Martin Dewey, President-elect of the American Dental Association, will be present.

One of the features of the meeting will be the clinical program, which will include a special section devoted to guest clinicians.

A cordial invitation is extended to all members of the American Dental Association.

Geo. D. Estes, Secretary,  
911 Medical Arts Bldg., Minneapolis, Minn.

THE LOUISIANA STATE DENTAL SOCIETY will hold its next annual meeting in New Orleans, La., April 20-22, 1931.

JULIAN S. BERNHARD, Secy.,  
417 Medical Arts Bldg., Shreveport, La.

THE AMERICAN SOCIETY OF ORTHODONTISTS will hold its Thirtieth Annual Meeting at the Jefferson Hotel, St. Louis, Mo., April 21-24, 1931.

HARRY E. KELSEY, President,  
833 Park Avenue, Baltimore, Md.  
CLAUDE R. WOOD, Secretary,  
Medical Arts Bldg., Knoxville, Tenn.

THE KANSAS STATE DENTAL ASSOCIATION will hold its Sixtieth Annual Convention at Hutchinson, Kansas, April 27-29, 1931. Among the essayists will be Percy R. Howe of Boston and Sterling V. Mead of Washington, D. C.

All members of the American Dental Association are cordially invited to attend.

FRED A. RICHMOND, Secretary,  
305 Federal Reserve Life Bldg.,  
Kansas City, Kansas.

THE CONNECTICUT STATE DENTAL ASSOCIATION will hold its Sixty-Seventh Annual Meeting at Hartford, Conn., April 28-30, 1931.

JOHN F. THOMPSON, Chairman,  
Publicity Committee,  
902 Main St., Hartford, Conn.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its Sixty-third Annual Meeting at Hotel Pennsylvania, New York, May 12-15, 1931.

A cordial invitation is extended to all dentists, members of the American Dental Association and to all ethical Canadian dentists.

John T. Hanks, 17 Park Avenue, New York, is Chairman of the Exhibits Committee. Address Dr. Hanks for information relative to space and terms.

Fred R. Adams, 8 West 40th St., New York, is Chairman of the Clinic Committee. Under his direction a new plan will be presented in the presentation of the Educational Clinics. Dr. Adams will be pleased to hear from ethical dentists willing to present clinics of merit.

For general information, address the Secretary.

ALFRED WALKER, President,  
100 West 59th St., New York, N. Y.  
A. P. BURKHART, Secretary,  
57 East Genesee St., Auburn, N. Y.

THE DENTAL HYGIENISTS ASSOCIATION OF THE STATE OF NEW YORK will hold its Eleventh Annual Meeting at the Hotel Pennsylvania, New York, May 12-15, 1931.

A cordial invitation is extended to members of the dental profession, dental hygienists and dental assistants.

EVELYN M. GUNNARSON, President,  
MABEL ERCKERT, Corresponding Secy.,  
18 East 48th St., New York, N. Y.

THE SECOND INTERNATIONAL ORTHODONTIC CONGRESS will be held at the Savoy Hotel (not the Hotel Great Central as previously announced), London, England, July 20-24, 1931.

A full program of papers and demonstrations has been arranged and a Museum will be a prominent feature of the Congress.

An attractive social program for members and those accompanying them is in course of preparation.

Letters setting out the conditions under which contributions to the proceedings are invited, together with copies of the Congress Rules and application forms for membership, have been sent to all known to be interested in orthodontics, and the Secretary-General (A. C. Lockett, 75 Grosvenor Street, London, W. 1) will be happy to send all such information to any one applying for it.

Regular membership in the Congress is limited to those who are members of organizations which are component societies of the Congress.

Subscribing membership is open to all persons of repute, irrespective of society membership, although subscribing members have no right to vote or hold office in the Congress.

J. H. BABCOCK, President  
A. C. LOCKETT  
B. MAXWELL STEPHENS } Secretaries-General

THE AMERICAN DENTAL HYGIENISTS' ASSOCIATION will hold its Eighth Annual Session in Memphis, Tenn., October 19-23, 1931.

AGNES G. MORRIS, Secretary,  
886 Main St., Bridgeport, Conn.

